

AUTOMOTIVE INDUSTRIES

Vol. 55
Number 15

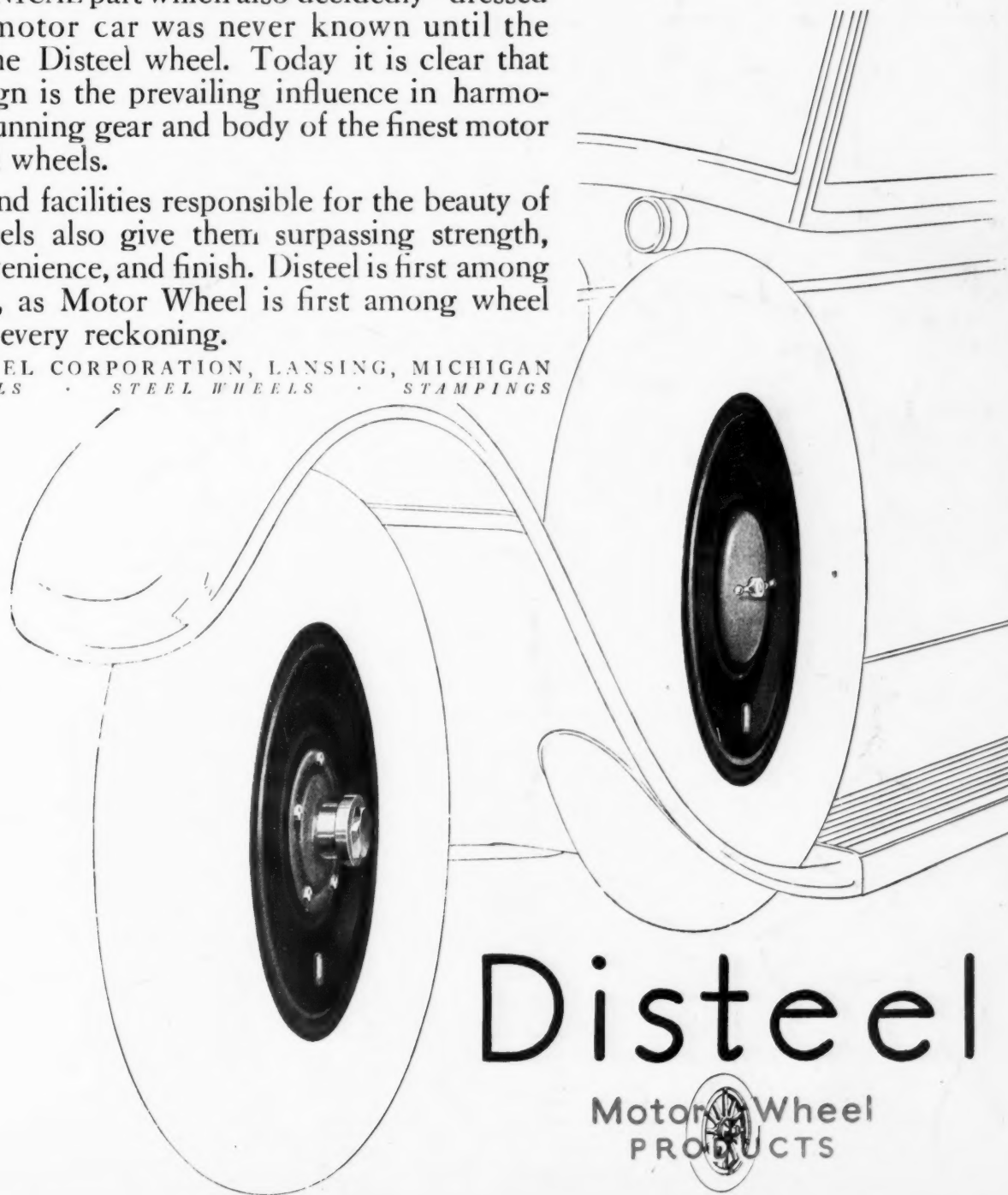
PUBLISHED WEEKLY AT CHESTNUT AND 56TH STREETS
PHILADELPHIA, OCTOBER 7, 1926

35c a copy
\$3.00 a year

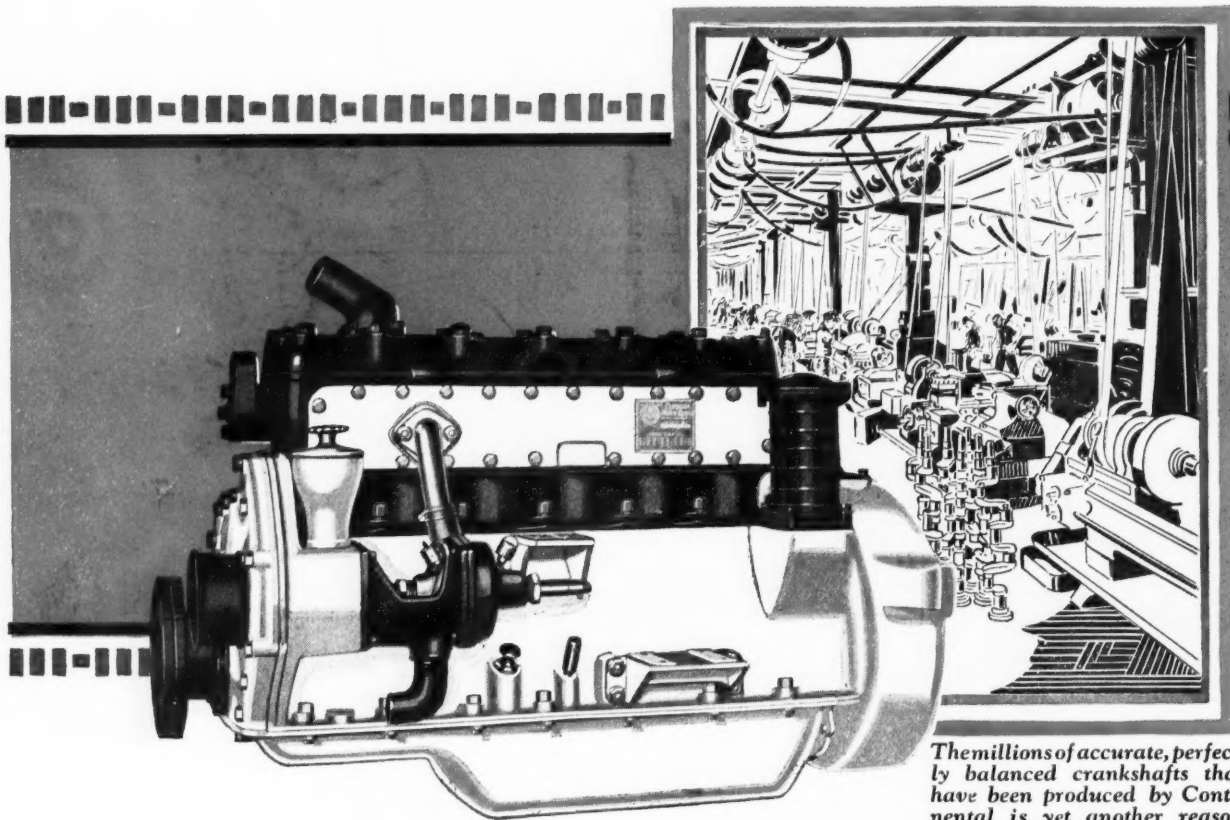
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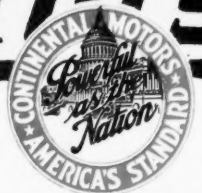
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Five New Bus Chassis Unveiled at A. E. R. A. Convention

Mack and White "sixes" and a Metropolitan eight-wheeled job among new models shown at Cleveland this week.

Trend toward luxurious bodies continues.

By K. W. Stillman

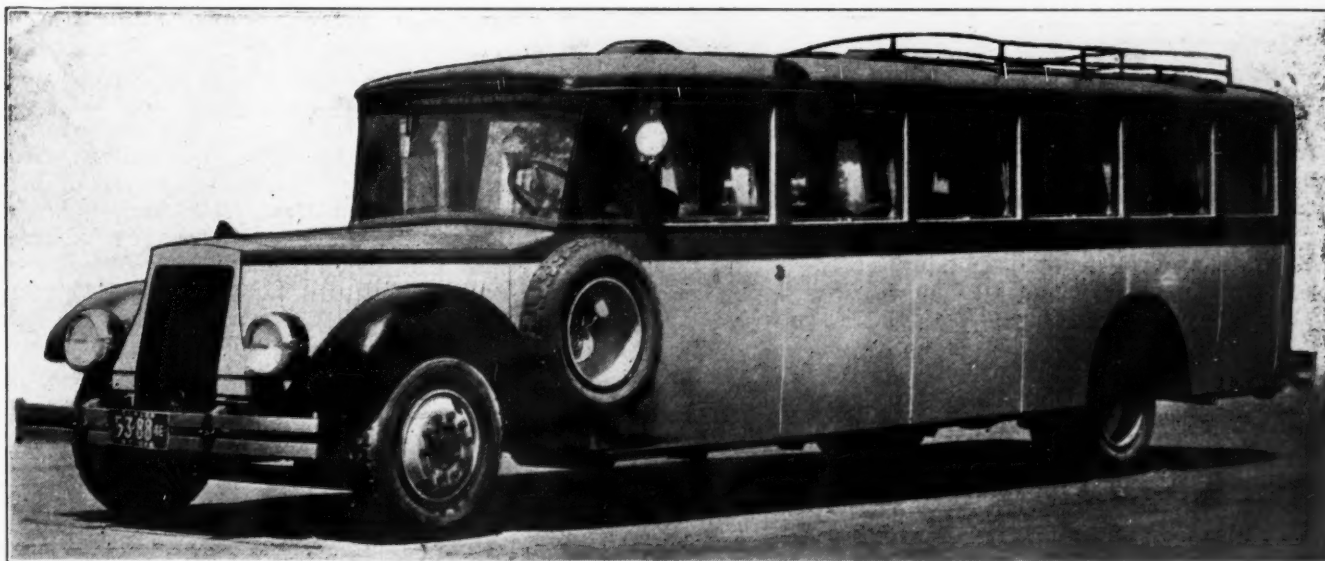
THE first public showing of five new bus chassis, premiers of some score of body models and the introduction to the public of innumerable detail improvements and refinements, nearly all designed to increase comfort and appearance, feature the automotive part of the 45th annual convention and show of the American Electric Railway Association which opened Monday, Oct. 4, at the Cleveland, Ohio, public auditorium.

The automotive part of the convention is of such importance that nearly half of the total 120,000 sq. ft. of floor space is occupied by exhibits of buses, trucks and their parts and accessories. It is apparent that to a considerable majority of the more than 8000 delegates

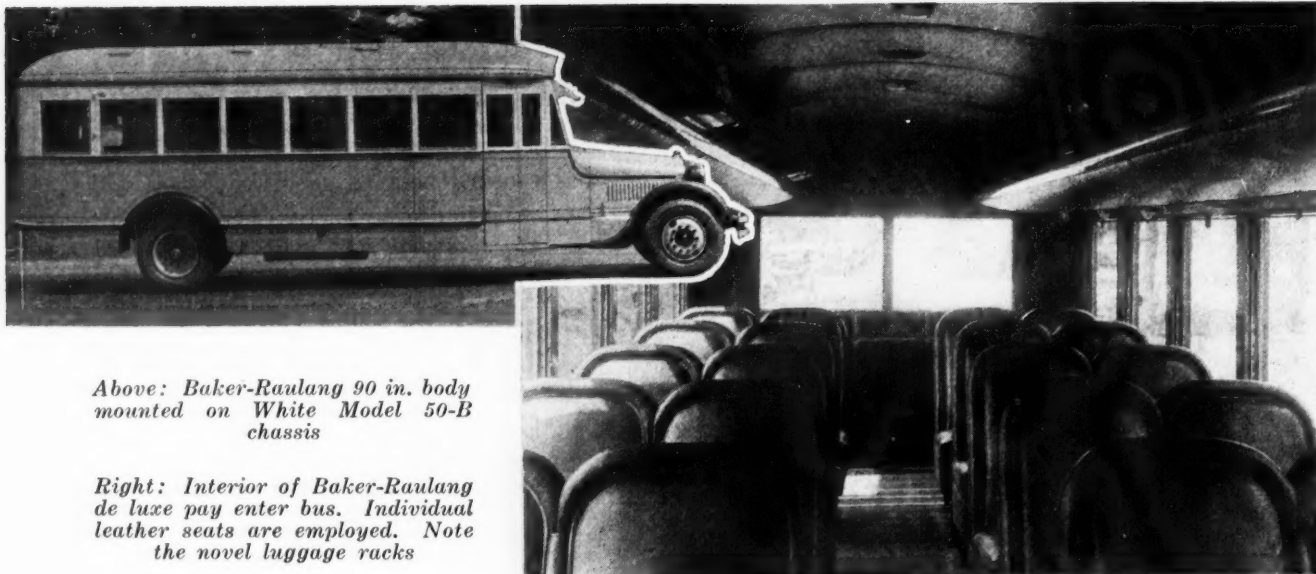
who registered on the opening day the automotive exhibits are of paramount interest.

Both Mack and White are introducing new six-cylinder bus chassis at the show. The Wilcox Trux Co. is also displaying a six-cylinder job new to the industry. Liberty Motor Vehicle Co. is showing its chassis equipped with the Fraser electric control unit and the Metropolitan Coach and Cab Corp. is showing for the first time on eight-wheeled job constructed under L. W. Coppock patents.

In all of the many new body models of the parlor car type a distinct trend toward even greater luxury is noticeable, while in street car type buses more rapid handling of passengers and better servicing conditions



Parlor car type body mounted on the new Mack six-cylinder chassis



Above: Baker-Raulang 90 in. body mounted on White Model 50-B chassis

Right: Interior of Baker-Raulang de luxe pay enter bus. Individual leather seats are employed. Note the novel luggage racks

have received emphasis during the past year.

Parts and accessory manufacturers have not been idle either, and in most of the exhibits products are being shown which have been designed for satisfactory performance under the very strict operating requirements demanded by present day motor coach practice.

At the technical sessions of the A.E.R.A. and its various affiliated bodies, many subjects of automotive interest are being discussed.

Luxury, obtained through greater comfort and appearance, still seems to be the foremost thought in the minds of the bus builders who are exhibiting their products at the show this year.

Comfort is being increased in innumerable ways while the appearance—both exterior and interior—of buses of the parlor car types is remarkably pleasant.

To obtain the highest degree of comfort, most bus builders have turned to air-cushioned seats, plenty of leg room between them, wider aisles, greater window areas, better ventilation facilities, fans and many other detail items, possibly of little importance alone but when combined with all the others contributing to a total result in comfort which surpasses anything to be found even in the most expensive of private cars.

General appearance of the buses depends mainly upon the exterior finish and it is apparent that greater consideration is being given to this point than ever before so that the first impression given by a bus will truly convey the ideals which have sponsored it.

As an example of what is meant, a number of city type buses, intended for purely utilitarian purposes—but comfortable for all of that—are finished in various shades of yellow. To anyone familiar with city streets this color immediately calls to mind satisfactory, quick transportation and that, evidently, is the impression the owner of such a bus would wish to give.

At the other end of the scale there are many ultra-luxurious jobs whose exterior finishes are intended to create an impression of regal comfort in the mind of the beholder. One of the most successful of these is a Pierce-Arrow, which is finished in very dark maroon below a bright red belt and gilt double moldings with dead black superstructure. This particular combination certainly conveys the impression mentioned before and the interior does not belie it in any degree.

There are so many brand new developments which are just now being taken up by most of the builders

that it would be hard to list them all. Some which appear to stand out more conspicuously than others may be mentioned.

Front quarter windows are adjustable, and screened to provide better ventilation, and air movement inside the bus is facilitated by the installation of miniature fans, usually at the front but on some jobs toward the rear as well. In this connection also, window eaves are noticeable, providing for open windows during rainy weather. In a number of coaches narrow deflectors are placed in front of all windows to lessen draft.

The problem of baggage accommodations, a serious one at the show last year, seems to be fairly well solved now by the use of racks over the seats patterned after railway coach practice. In most cases, provision is made on the roof for excess luggage, and the rear compartment, equipped with taxi-type folding seats, is still in favor.

Rack on Back of Seat

In two or three sedans a rack is provided on the back of the next to the rear row of seats. A brand new method is used in a Lang body by raising the seats above the aisle and utilizing the space thus provided for baggage. Entrance to these compartments is from the outside. A Bender body on a White chassis has special doors at the rear giving access to a baggage space located under and behind the rear seats.

Wicker chairs seem to be very popular, possibly because of their weight reduction possibilities. That they can also add to appearance is shown in an E. J. Thompson body in which the wicker work is woven from multi-colored strands harmonizing with other finish colors.

Air cushions, spring backs and the use of arm rests, often on each side of each individual seat, have become almost standard practice, and without one exception to be found in a rather thorough survey there is ample leg room provided between all seats of all buses.

Leather upholstery of the new, soft, dyed products of the tanners is very much in evidence, although the standard fabrics are not obsolete by any means. Some of the colored fabric designs used are remarkably beautiful.

Several models are fitted with windows of safety glass similar to those used on the Stutz passenger car.

Observation type buses are still being built with

their wide rear windows, awnings and railings, but the actual observation is being given more attention. A Gramm-Kincaid bus of this type has two seats facing to the rear while in a Fageol observation coach there are five single revolving chairs at the rear.

Several makers are protecting the driver by enclosing his compartment or installing permanent partitions between him and the passengers. This is true more of city type bodies. For parlor cars the driver's vision at night is being aided by shielding the front of the dome lights.

Steel disk wheels are fitted on a large majority of the buses while a considerable number also have balloon tires.

Seats in White buses are usually fitted with adjustable backs. Yellow parlor cars have solid mahogany ceilings and dash. A Pierce-Arrow coach has the entrance door in the second panel with the space opposite the first panel being occupied by a single revolving chair.

A new type of domed roof construction is demonstrated in a Lang body and in a Wolfington body on a Six Wheel chassis, by which full height is obtained over the aisle.

No word picture can possibly be painted showing the many striking color combinations used but a review of a few of them may convey some idea of the general appearance of a whole floor full of such bodies.

Mack—Gray below red belt, cream wheels, red roof.

Garford—Light blue lower part and dark blue superstructure separated by maroon belt.

Brown body on White chassis—Gray lower, black belt, cream trim.

International Harvester—Purple hood, cream body, red belt, gilt moldings.

Kuhlman—Light blue lower, red belt and top, black double moldings, white window trim.

Studebaker—Entire finish, exterior and interior, in red shades except black moldings, top and fenders.

Yellow—Two shades of green for main color, red belt and reveals, black molding and trim.

Kuhlman-Fageol—Blue lower part and moldings, gilt belt, white window trim, red top.

The White is a 6-cylinder job of which no details have yet been made available.

The Liberty chassis was described in *Automotive Industries* of September 23. Its main operating feature is the Fraser electric control unit which operates in the

same way as the usual gas-electric drive. The Fraser unit, however, combines motor and generator in a single unit and a weight reduction of some 40 per cent is claimed over other types. Considerable thought has been given to operation and maintenance of this job. Thus the engine can be slid out and quickly replaced; all driver controls can be reached without removing a hand from the wheel.

The Wilcox Trux chassis, with a 6-cylinder Waukesha engine, will be described in a later issue.

The Metropolitan is an interesting job of 8 wheels and built under patents held by L. W. Coppock. It, too, will receive more attention later.

Six-Cylinder Mack

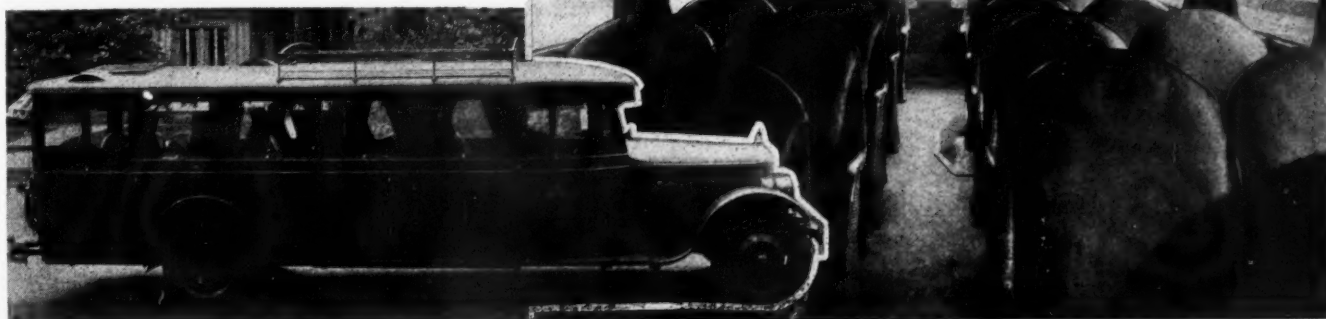
THE International Motor Co., is showing for the first time a six cylinder bus chassis which has been under development for several years. The new chassis is being offered equipped with bodies of the parlor car and city type, both seating 29 passengers. The latter may be had with gas-electric drive.

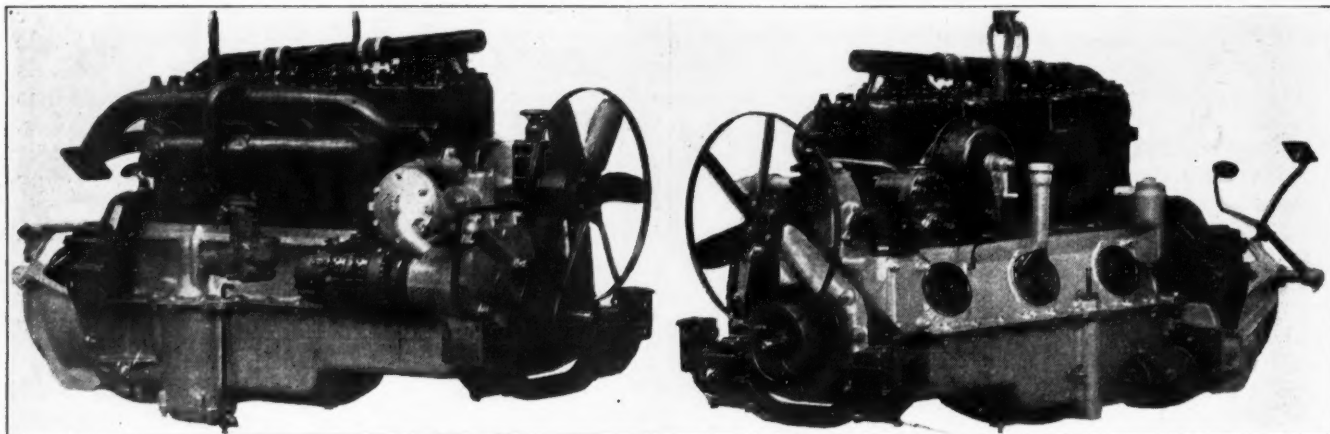
One of the outstanding features of the new design is the extensive use that is made of rubber mountings, the engine, amidships transmission and springs all being supported in shock insulators of this material. Externally the new design of stream-line hood and the clear-vision windshield are of special interest. The wheelbase is 232 in. with an overall length of 333 in. for the city type and 341 for the parlor car. At the driver's seat, the frame height is 25 in. Chassis weight complete is 8950 lb.

Power is supplied by a six-cylinder, L-head engine with $4\frac{3}{4}$ in. bore and 5 in. stroke developing 97 hp. at 2200 r.p.m. The cylinders are cast in block but the heads are in pairs. Four main bearings having a total length of $10\frac{1}{2}$ in. and a diameter of $5\frac{1}{2}$ in. support the crankshaft, which has case-hardened journals. Tubular steel connecting rods are employed, while the pistons are of aluminum alloy with split skirts and inserts of a material having a low expansion coefficient to give constant clearance. Valves are actuated through roller tappets from the four bearing crankshaft which is driven by case-hardened, helical timing gears. Only three gears are involved in the front end drive, the third being a bronze gear set transversely to the driv-

Below: Thompson express service body on Yellow "Y" chassis. Note the amount of window space and the skylight over the rear

Right: Interior of Thompson coach body. The observation compartment in the rear is of particular interest with its wide windows





Right and left-hand views of Mack six-cylinder engine

ing shaft whose opposite ends connect the water pump and Robert Bosch magneto. Combined force feed and splash lubrication is employed and an oil filter is furnished.

The carburetor is a 1¾ in. Stromberg, to which fuel is fed by an Autopulse pump from the 50-gal. tank mounted on the left side of the frame and shock insulated. Electrical equipment includes a generator and starter of North-East make, the former being of 600-watt capacity, and a 12-volt, 120 amp. hr. Exide battery. At the rear the engine is supported in insulators by a drop-forged steel beam "through"-bolted to the rear main bearing, thus relieving the aluminum crankcase of twisting strains. Tests are said to show a gasoline mileage of seven and an oil consumption of one gallon per 320 miles.

Drive to the single plate clutch and amidships transmission is through a short shaft having a flexible coupling embodying rubber members to provide cushioning. Ball bearings are used throughout the four-speed transmission which has generated-ground gears of 1¼ in. face. This unit is also mounted in shock insulators. Power is carried to the double reduction rear axle through a two-piece propellor shaft with four universals. The front axle is an I-beam of the Lemoine type.

B-K Booster Brake

The B-K vacuum booster is used to actuate the foot brakes which operate externally on 18 x 5 in. drums on the rear wheels. The hand lever controls an external brake supported from a frame cross member and located between the two pieces of the propellor shaft. The 11 x 6 in. drum is balanced and runs on ball bearings.

Front springs are 46 x 3½ in., while at the rear the dimensions are 70 x 3½ in., all mounted in rubber shock insulators. Heat treated, chrome-nickel steel is used for the frame, which is stiffened torsionally by two tubular cross members at the rear spring outriggers. The steering gear is a worm and wheel type providing a reduction of 20 to 1. Its column is secured to the cowl by a rubber-insulated bracket, while the driver is further protected from vibration by the use of a 20 in. steering wheel with flexible rim of vulcanized rubber fabric. Spark, throttle and horn controls are mounted above the steering wheel.

Fenders are full-crown and the wheels are Budd-Michelin, ten stud disk type. Tires are 34 x 7 in. pneumatics with duals on the rear.

Reo Convertible Body

THE Reo Motor Car Co. is displaying a new bus which is so arranged that it may be furnished either as a 15 passenger parlor type with central aisle or as a 17 passenger sedan type with cross seats. Considerable attention has been given to the question of weight in the design of this job so that by reducing the number of doors to four, by using somewhat light construction throughout and the employment of wicker seats the total weight has been kept to 7075 lb. The price of the new model complete is \$5100.

Except for the adoption of 34 by 7 in. single rear tires in place of 32 by 6 in. duals and a slight increase in braking area, the series "W" chassis is identical



On the backs of the seats forming the fourth row, a light wicker rack is provided on the 17-passenger Reo model to carry small parcels

Erskine Six Shown in Paris

Studebaker creation has a 146 cu. in. engine, 107 in. wheelbase, and is priced at \$895-\$975, f. o. b. Detroit.

PARIS, Oct. 7. (Special cable to *Automotive Industries*) — Announced by the Studebaker Corp. of America, the Erskine Six, with a wheelbase of 107 in., a height of 67½ in. and piston displacement of 146.1 cu in., was the outstanding feature of interest from the viewpoint of American manufacturers at the Paris Salon which opened today. Cars of many nations are on exhibition as in past years.

The Erskine Six, revealed here today for the first time, is said to have been designed expressly for European requirements. In general appearance it is distinctly European, but embodies all of the American standards of performance and comfort.

The new car has a six-cylinder engine of 2⅞ in. bore and 4½ in. stroke, giving a piston displacement of 146.1 cu. in. By the R. A. C. or N. A. C. C. formula, the rating of the engine is 16.54 hp. Peaking at 3200 r.p.m., it develops a maximum of 40 hp. and a speed of 60 m.p.h. can be obtained. The car has a tread of 53 in. It is fitted with Kelsey wire wheels with demountable rims, and four-wheel mechanical brakes of the internal type are standard equipment. All brake connections are by rods. Both hand and foot control are provided for these brakes.

Engine design is along standard lines, the cylinder block being of the L-head type, with a detachable cylinder head. Water pump and radiator fan are built together and driven by a single belt. The crankshaft is of the four-bearing type and

the engine has full-pressure lubrication. Wagner electrical equipment is fitted, the generator and starter being separate units and both mounted on the right side of the engine. Fuel is fed from a rear-mounted tank to the carburetor by an electric impulse pump. An oil purifier is standard equipment. At the front the engine is mounted on rubber blocks.

Either right or left hand steering is provided for. The transmission is the conventional three-speed unit, and from it the power is transmitted to the rear axle by an exposed propeller shaft incorporating Spicer universal joints. The Hotchkiss drive is being used, the only connection between the rear axle housing and the frame being by the rear springs.

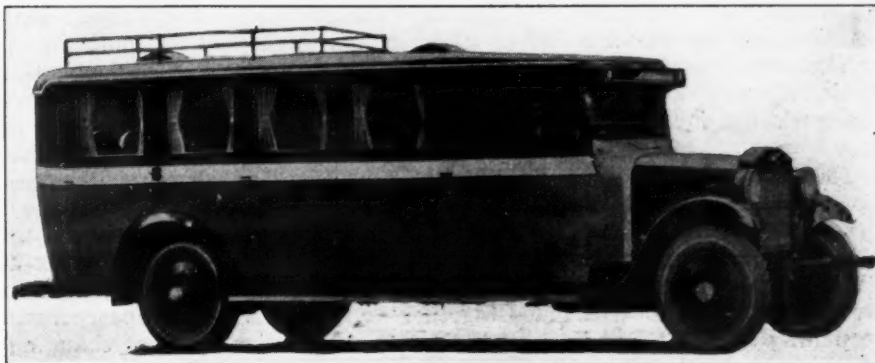
At the Salon the car is being shown in two body types, both by Dietrich—a sedan (styled here a *condiute interieure*) and a touring phaeton. Both are four-door designs. The sedan is an all-steel construction with narrow pillars and wide windows, giving a clear view effect. It has individual adjustable front seats. The battery box is in the right and the tool box in the left fender. Combined head and sidelights are fitted. The weight of the sedan, empty, is only 2200 lb.

The car is designed to do 60 miles per hour, covers 28 miles on a gallon of gasoline under test conditions and turn in an 18 ft. radius. The price of the sedan has been set at \$975 and that of the touring at \$895, both f. o. b. Detroit.

to the unit employed for the other bus models in the line.

When used as a 15 passenger model, the center door on the right side is locked and a seat placed in front. The front door is then used as a pay-as-you-enter type entrance. Differing from the 17 passenger model wherein all seats face forward, the seats over the wheel housings in the 15 passenger type face the aisle.

On the 17 passenger sedan model, the front door allows ac-



Side view of the latest Reo sedan type bus which features a two-way seating arrangement



UPPER LEFT: Interior of Six Wheel lightweight bus body. Note the arched roof which makes easy conversion to street car type body. UPPER RIGHT: View showing ceiling construction employed in Six Wheel one-man, double-deck bus. LOWER LEFT: Exterior of Six Wheel lightweight bus with rear baggage compartment and jack-knife type door. LOWER RIGHT: Interior of American Car Co. body mounted on Six Wheel Model 64 chassis

cess to the two front rows, the center door is available for the third row with the seat nearest the door folding forward, permitting entrance to the fourth row, while the rear door on the right side allows access to the last row and the wicker baggage rack attached to the back of the fourth row seats. In addition to this parcel compartment, a luggage carrier is provided on the roof for heavier articles.

Seats in both layouts are wicker, upholstered in genuine Colonial gray leather with head linings and walls trimmed to match. Floor covering is linoleum and the windows are provided with slide shades. A combination sign box and sun visor is standard equipment.

Six Wheel Company

THREE new bus bodies are being shown in the space occupied by The Six Wheel Company—a Birney safety, city type, 29-passenger body; a one man operated, fully enclosed, double decker; and a single deck coach which can be quickly transformed from a de luxe type to a street car type.

The safety type body was built by the American Car Co., of St. Louis. It is of all-steel construction employing pillars of T construction carried in a continuous piece from side sill to side sill and riveted to each sill. Sheathing is of steel lined with Honduras mahogany. Roof is of tongue boards glued together and fastened to nailing strips attached to a one-piece T member—a continuation of the pillar construction.

An interesting feature is that the rear door—located at the right side—is operated by a pneumatic treadle

so connected with the air brake system that when the bus comes to a full stop and a passenger approaches the door to alight the door opens automatically and the bus cannot be started again until the door is fully closed. Another innovation is the equipment of the foot throttle with the Birney "dead man control" so that in case of an accident or sudden illness of the operator removal of his foot from the throttle automatically applies the brakes.

Instead of the usual roof ventilators, four louvres are provided in the rear end letter panel over the window. The windshield is of two pieces, either one of which can be raised by means of a regulator handle located in the header. A pneumatically operated fare box, controlled by a treadle placed near the driver's foot is placed at his right.

All windows are furnished with roller shades operated by pinch handle fixtures running in grooves. The driver's seat is adjustable. An illuminated direction indicator is furnished for the rear of the bus.

The double deck bus being exhibited is fitted for one man control through the use of a pneumatic treadle operated, rear door. Total height of the bus is kept low with full headroom on both decks by raising the lower ceiling over the center aisle, placing the upper seats upon this raised section and utilizing the outer portion of the upper deck as a passageway.

The new Six Wheel single deck bus has been designed to give a combination of lightness with strength and also incorporates other interesting features such as ease of changing from a de luxe type bus to one suitable for ordinary city service.

To obtain lightness with strength, airplane practice has been followed in the design and the pillars are

copies of hollow airplane struts while the belt and head rails are modeled after the thick single wings of monoplanes. The body subframe has often been eliminated and the pillars rest directly on the steel channels. Side paneling is of 14 gage aluminum so arranged that individual sections can be quickly replaced in case of damage.

By arcading the roof, a headroom over the aisle of 76½ in. has been obtained so that, if desired, the bus can be used for city service. By the removal of the curtains and windows and the installation of raise type, brass sash windows, outside window guards and inside handrails over the aisle, the parlor car type body is converted into a street car type. The body already has a full headroom jack-knife type door in front and there is available space for installing advertising card racks.

The seating capacity of this body is 29. The overall length from bumper to bumper is 27 ft. 11¾ in. The body shell, without seats, weighs 2702 lb., and equipped with seats ready for service the weight is 3518 lb.

Thompson Express Coach

ITS belief that future trends in design of inter-city express coaches will be along the lines of greater luxury and comfort, even by reducing the seating capacity to do so, is evidenced in the display of the E. J. Thompson Co. It has on display a very luxurious body mounted on a Yellow "Y" chassis. The accompanying illustrations are of a slightly different body, the principal changes being in the substitution of more luxurious seats 24 in. wide for the ones shown, altered window curtains and generally different decorations.

In the main, the body shown represents that on display and the trend toward greater comfort and luxury is evident in the very wide expanse of window space, particularly in the rear; the narrow pillars; the sky light in the rear compartment and the many fittings, including an ice water jug shown suspended from the right wall.

Baker-Raulang Body

THE Baker-Raulang Co. is showing a body mounted on a white Model 50-B chassis in which the inside width is 89 in. although the maximum outside dimension is only 90 in. This permits the use of 34 in. seats and a 21 in. aisle. An interesting belt line effect is given this job by means of a graceful curve which connects the molding just at the lower level of the windows with a belt of the same color extending along the hinge line of the hood.

A second job from the same body shell and mounted on the same chassis is a deluxe type pay-enter coach provided with individual chairs trimmed with leather. Taxi type seats are employed at the rear and the overhead baggage loft recently developed by Baker-Raulang is fitted.

In both of these bodies the battery compartment is accessible from the outside and is closed by the lower portion of the left hand front door. The body panels have been standardized so that they can be replaced quickly and this is still further facilitated by the company's practice of recording all sales of bodies in such a way that replacements parts can be selected without delay.

Parts and Accessories

The Spicer Associated Companies are showing for the first time their Type O bus and truck size uni-

versal joints. These joints are oil lubricated, the oil being held in one-piece ring which keeps the parts of the joints in permanent alignment and is said to be capable of operating for several thousand miles without renewing the oil supply.

New Panel Material

The Haskellite Corp. is showing Aluminum Plymetl, a recent development for decreasing the weight of side panels. The new material of half-inch thickness weighs about 1½ lbs. per square foot while the ordinary Plymetl—with a steel coat—weighs 2 lb. Aluminum Plymetl consists of three-ply Haskellite plywood to which is cemented a 26 gage sheet of hard aluminum.

Motor Products Corp. is showing two devices new to the industry—Detroit diamond steel sash and Mono-control windshield. Advantages claimed for the new sash include simple installation, the lower section being screwed in solid and the upper section being doweled at the lower end and secured by two or three screws above. To reglaze, only these screws need be removed in order to lift the sash out complete. Rattle proof and water-tight conditions are made possible by means of a strip of sponge rubber at the top and of edge rubber over the convex side of the lower sash channel. Easy lowering and raising is a feature.

The sash is built of steel, parkerized and black enameled, but it may be had in brass. Drop sash is standard construction but lift type can also be supplied.

Mono-Control Windshield

The new Mono-control windshield is of the one-piece swinging type but instead of being hinged at the top is hung on trunnions at the end of the top cross member which engage in bronze bushings set into the corner posts. By thus doing away with the usual arm sectors, the installation is said to be simplified, and the use of narrow corner posts and headers made possible. The windshield is operated by a crank which can be located at any position along the top cross member. Compensating spring adjustments are provided to overcome side play and end thrust. The shield opens to an angle of 60 deg. and is water tight and said to be rattle proof in either the open or closed position.

Its new ball-bearing ignition unit equipped with standard S.A.E. magneto base is included among the exhibits of the North East Electric Co. This unit is furnished with either manual, semi-automatic or full automatic spark advance, and for either left or right hand mounting. It has been developed particularly for heavy duty bus service and is available with spark advance in conformity with the characteristics of the engine.

The Westinghouse Air Spring Co. has on display its new Transit Model shock absorber for heavy buses and trucks. This unit is similar in design to other Westinghouse units and operates both ways on air cushions. New features include improved packing, automatic return pumping action to insure an oil seal and constant internal lubrication in the pressure chamber.

It is built to withstand heavy service, is completely protected from dust and dirt by a heavy leather cover and a felt wiper, is light in weight, easy to disassemble and wearing parts can be replaced at small cost. Brief specifications are: maximum capacity on front wheels, 8000 lb.; cylinder diameter, 4½ in.; stroke, 4½ in.; weight, 65 lb.; height overall, compressed, 21⅝ in.

Chrysler Announces "Finer 70" With New Body Designs

Prices also reduced from \$30 to \$220. Height of closed cars decreased by new roof lines and smaller wheels. Rigid side curtains a feature of open sport models.

NEW styles in body design, lower prices, and the introduction of deep section tires on 18 in. diameter wheels are announced with the introduction of the new "70" series Chrysler cars. Compared with the corresponding models of the previous series, the price reductions range from \$30 to \$220.

A new style sport phaeton modeled along European lines, a 4-passenger coupe and a cabriolet, are the three new bodies which have been added to the "70" line, while the regular coach and sedan models of the previous series are discontinued.

Aside from the new wheels and a slight modification in the piston design, there have been no mechanical changes in the chassis other than those incorporated from time to time as new developments were introduced.

Besides adding materially to the riding qualities of the cars, the new 18 in. diameter wheels mounting 30 by 6.00 in., Fisk tires have reduced the height of the cars and lowered the center of gravity slightly over $\frac{1}{2}$ in. The new tire and wheel sizes, in conjunction with flatter springs and the new roof lines, are responsible for a decrease of $2\frac{1}{2}$ in. total in the height of the closed cars. In place of the conventional split-rim used with the 20 in. wheels of the previous series, the new cars employ one-piece straight side Firestone rims

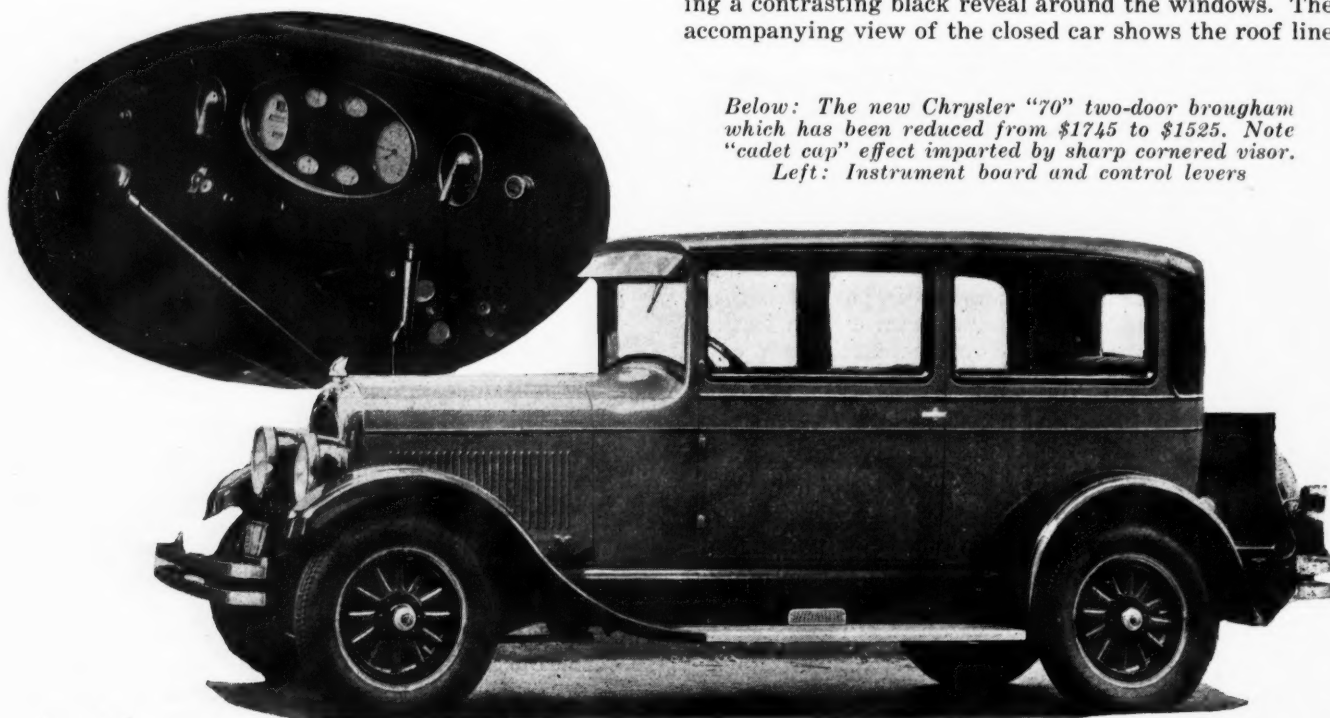
THE line of nine bodies and the comparative prices of the "Finer Seventy," as the new series Chrysler is known, are as follows:

	Old Price	New Price	Reduction
Phaeton	\$1395	\$1395	\$...
Sport Phaeton	New	1495	New
Sport Roadster	1525	1495	30
Brougham, 2-door ..	1745	1525	220
Royal Coupe, 4-pass..	1695	1545	150
Royal Sedan	1795	1595	200
Crown Sedan	1895	1795	100
4-Pass. Coupe	New	Price not announced	
Cabriolet	New	Price not announced	

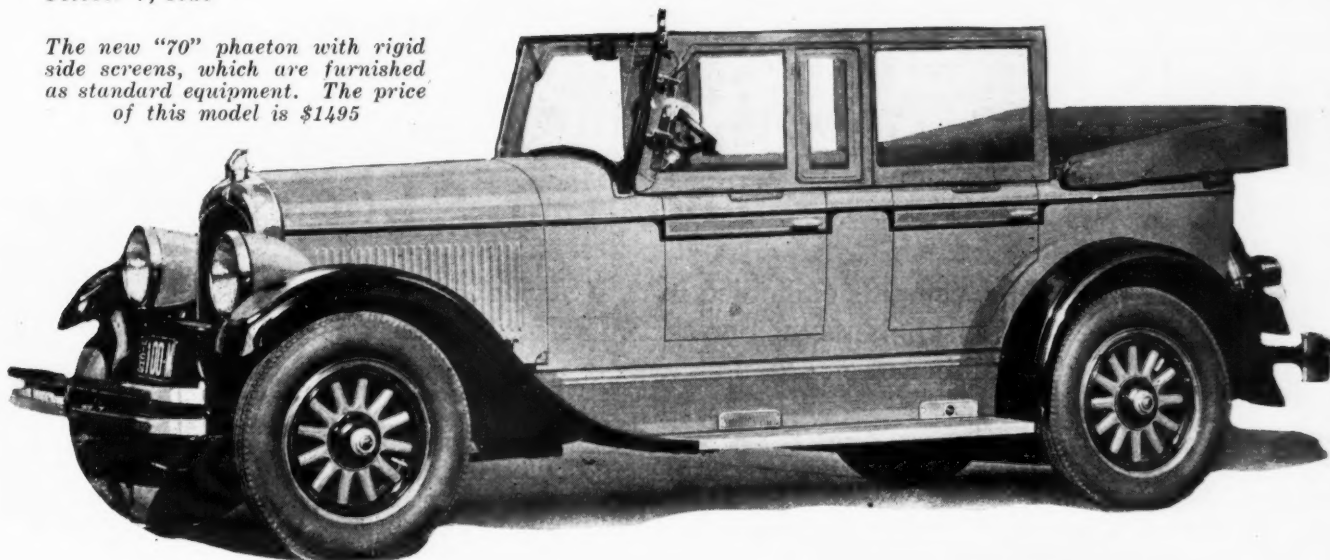
secured by a locking ring and four rim bolts on the Motor artillery wheels.

A custom built effect is achieved in the closed models through an unusual form of construction where the roof joins the windshield and by the method of carrying the body colors into the upper structure of the body, leaving a contrasting black reveal around the windows. The accompanying view of the closed car shows the roof line

*Below: The new Chrysler "70" two-door brougham which has been reduced from \$1745 to \$1525. Note "cadet cap" effect imparted by sharp cornered visor.
Left: Instrument board and control levers*



The new "70" phaeton with rigid side screens, which are furnished as standard equipment. The price of this model is \$1495

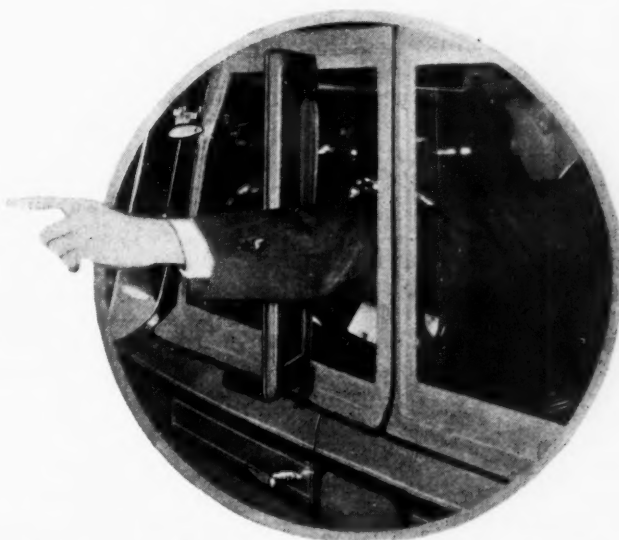


ending abruptly with a sharp edge directly above the windshield. The sun visor mounted below is short and set at an appreciable angle. This arrangement, together with the contour of the corner posts, which blends with the curves of the cowl and the front edge of the roof, gives the effect of a cadet's peaked cap.

In achieving symmetrical lines for the closed cars due to the lowering of the roof, redesigned fender contours and changes in the double belt effect, the radiator has been altered. It is now 1 in. higher and $\frac{3}{4}$ in. wider, with the edges of the shell narrower and the curved top surface more rounded. On the open models with their lower lines, the radiator of the previous "70" series is retained. With the increased frontal area of the closed car radiators there has also been a change in the cellular cell construction. The Viking radiator cap emblem employed on the larger "80" series is standard on the new "70." Headlights of the closed cars are slightly larger while the bullet shaped lights of the previous "70" line are employed on the open sport models. The headlights are now carried on a new one-piece cross fender support of tubular section.

There are two unusual features in the open sport models. Both of these cars have the main body colors carried down over the side splashers to the running board, which gives an impression of increased length to the car, and also rigid side curtains of a new type are adopted. Following the British and European custom, the phaeton model is designed so that the rigid side curtains may be used when the top is folded thereby allowing the passengers all the advantages of an open car without the possibility of discomfiture from side winds and draughts. These curtains, formed of Pyralin and setting into special fixtures on the doors, may be opened with the doors either when the top is up or when folded. In the latter position, the top sets flush with the top of the rear seat and is protected by a boot which covers the side bows as well. When it is necessary for the driver to extend his left arm to signal traffic with the curtains set in place, an auxiliary window provided with spring hinges makes this operation very easy. A special compartment behind the rear seat is provided for the carrying of the curtains when not in use.

Panel inserts of contrasting color to the general color scheme are embodied in the moulding of the doors on the sport models. The unison seats which have featured the previous sport models are retained in the roadster, the latter having also an unusually complete range of



Auxiliary window in rigid side screens of open models enables driver to signal traffic

equipment, including nickel-plated windshield stanchions, side windshields, and an extra folding windshield and shroud which set into the rumble seat compartment. A small door permitting access to the golf club compartment is provided on the right side of the body. The tonneau windshield and shroud are offered at a slight extra cost as are the attachments for carrying a trunk at the rear of the body. For certain closed cars the service department can supply welded front fenders for carrying the spare tire so that a trunk may be mounted at the rear of the bodies.

By setting the seat cushion frames directly on the floor boards, it was possible to lower the closed car roofs 1 in. at the rear and $1\frac{1}{2}$ in. at the front. This arrangement provides also for greater leg room in the interiors. Genuine walnut garnishings are used through the closed models while the upholstery is in a velvet mohair. Both the gearshift and brake levers on all cars are fully nicked and the front floorboards are sealed by felt strips to exclude the entrance of cold air in winter and hot air in summer.

A Hershey coincidental lock securing both the steering and ignition systems is mounted on the steering column near the instrument board. The latter has been redesigned and the layout of the oval instrument changed to accommodate a clock which is included as standard equipment.

Pierce-Arrow Adopts Balloon Tires, Lacquer Finish and Booster Brake

Many improvements embodied in new Series 36 Dual Valve Six which supplants the Series 33. Prices reduced on a number of closed models. New steering gear.

SERIES 33 Dual Valve Six is a new Pierce-Arrow model designed to supplant the Series 33, the former high-priced model of the Pierce-Arrow Motor Car Co. The new model is lower and has more graceful lines and more luxurious body appointments. The line consists of sixteen models. Sharp price reductions have been made on a number of closed cars, including the seven-passenger enclosed drive limousine, which is the most popular model in the line. Open cars and several of the more richly appointed closed cars are listed higher. The prices range as follows: Chassis, \$4875; closed cars, \$5875 to \$8000; open cars, \$5875. The Series 80 line is continued without change or revision in price.

Mechanically the car remains substantially the same, but a number of important items of equipment have been added. Chief among these are Isotta-Fraschini internal mechanical four-wheel brakes, operated by a B-K booster brake; a special design of

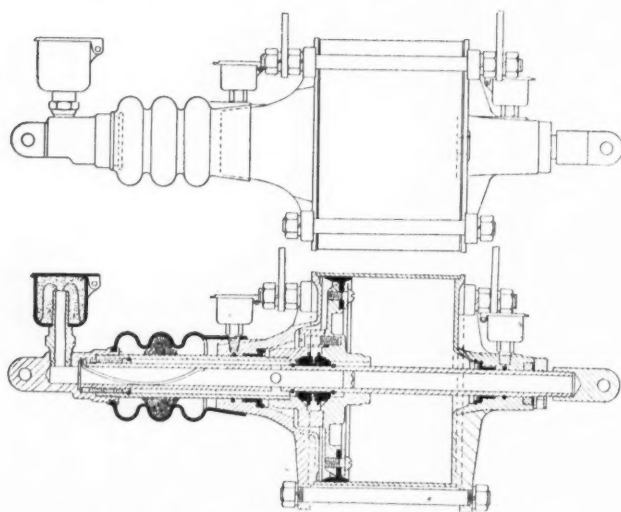
oil filter, a fuel filter, a new steering gear, improved manifold and carburetor control, and balloon tires. Formerly the Isotta-Fraschini brakes, which are used by Pierce-Arrow exclusively in this country, were supplied at an extra charge of \$250, while the tires were of the high pressure type. Lacquer finish has been adopted for all body models.

The oil filter, which is mounted on the right side of the dash, consists of an aluminum shell with aluminum top and bottom covers between which is clamped the shell enclosing the filter element, built up of felt washers cemented together. The oil enters the chamber surrounding the felts and passes through approximately $1\frac{1}{8}$ inches of felt to get to the central opening, whence it returns to the crankcase. Oil is delivered to the filter through a pipe connecting to the oil gage line. The flow of oil through the filter can be checked by turning the stop cock from which the oil will trickle if the filter is operating properly. Low cost of replacement of the filter element has been a primary consideration in the design. The filter element can be easily removed and cleaned, opening being provided for the purpose.

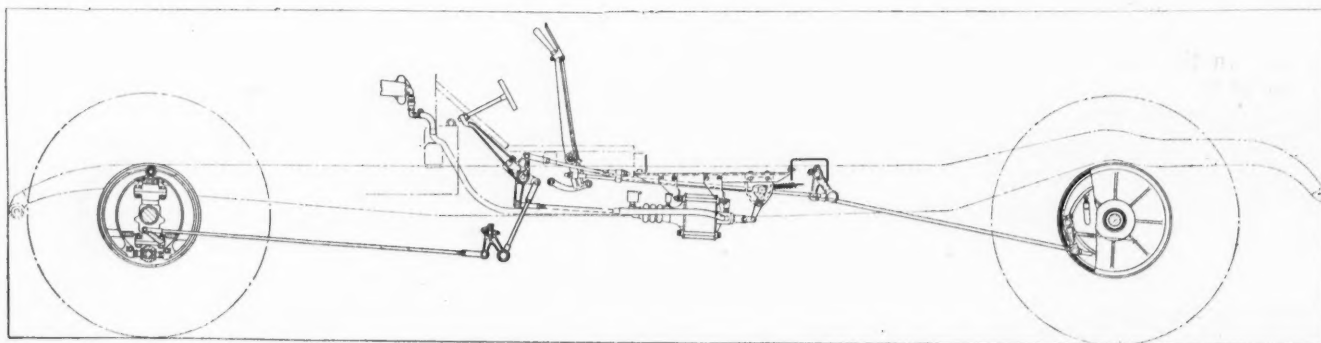
New Carburetor Control

A new improved roller and slotted lever type of slow opening control has been adopted for the carburetor. The inlet manifold is now exhaust-gas-heated. This is accomplished by carrying a tube from the exhaust manifold on the right side, through the cylinder block, carrying the hot gas to the inlet manifold on the left. It leaves the inlet manifold chamber through a small pipe and is discharged below the engine ledge. The gasoline filter is mounted on the left side of the dash between the line from the rear tank and the carburetor.

Artillery type wood wheels with 21-inch rims are provided to carry 33x6.75 in. six-ply balloon tires, taking the place of 23 in. rims carrying 33x5 in. high pressure tires on the previous model.



B-K booster brake as used on new Pierce-Arrow



Layout of brake linkage on Pierce-Arrow

To render the steering easier with the balloon tires a new steering unit has been adopted which is of the worm and roller sector type and takes the place of a screw and nut type previously employed. With the new equipment, the number of turns of the steering wheel for full lock has been increased from $2\frac{3}{4}$ to 3. A steering wheel 18 in. in diameter of selected walnut and finished in mahogany color to harmonize with the body trimmings is provided. New Pierce-Arrow design of short spark and gas levers, are mounted on top of the steering post, along with mahogany Bakelite horn button and control cover.

Rear Tread Increased

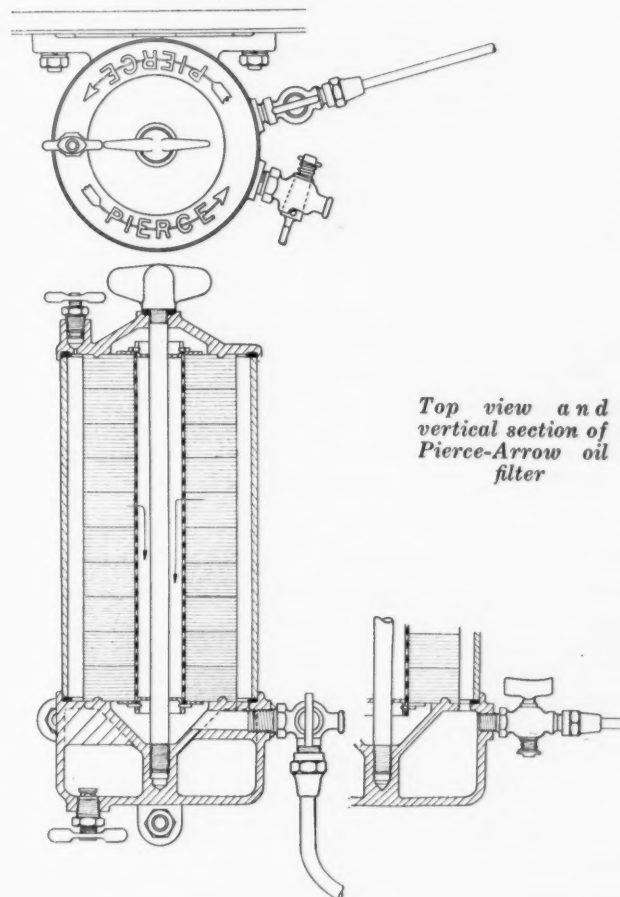
The front axle remains the same, while the tread of the rear axle has been increased from $56\frac{1}{4}$ to 58 in. To compensate for the effect of the increase in tread on the strength of the axle, heavier axle tubes are used. The ball and socket type support at the front end of the torque arm, which was previously employed, is now replaced with a rubber fabric type torque arm connection in which three rubber fabric plates are used. A fixed second gear solid countershaft transmission is now made standard equipment while the over-running second speed gear is special equipment. The new transmission was formerly offered as special equipment.

Front springs now have 15 leaves instead of 16. Shackles are an improved noiseless type, adjustable for wear. Rear springs are semi-elliptic, $61\frac{1}{4}$ in long and $2\frac{3}{4}$ in. wide. All spring leaves are ground and polished and a special graphite lubricant is applied between the leaves. With the use of lighter springs and balloon tires, the chassis has been lowered approximately two inches. The new fenders have a deeper crown and are wider. They have been brought down closer to the tire, which contributes materially to give the car a lower appearance. Head lamps built into the fenders, which has been a characteristic Pierce-Arrow feature, are continued, though drum type lamps mounted on brackets may be had at extra cost. Formerly the battery was carried under the left front seat, while now it is contained in the right fender. A similar container has been built into the left front fender for tools. An aluminum cover has been provided for each of these containers and is held in place by screws. The container with cover is water-tight. The hood is now of heavy gage aluminum instead of

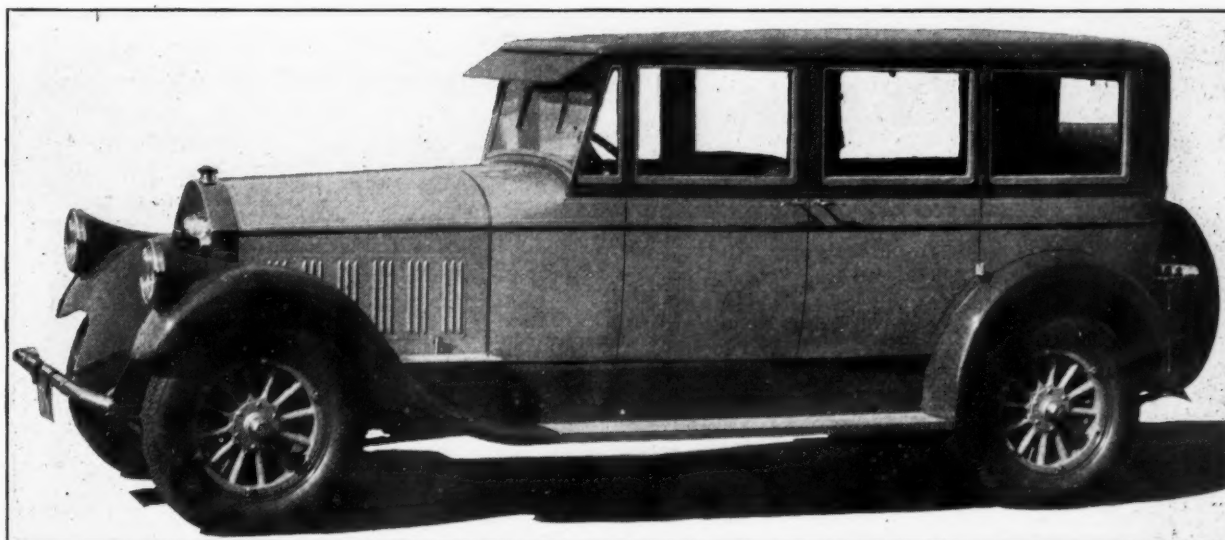
steel. Louvres have been changed and are gracefully grouped in six sets of threes. No change has been made in the radiator contour.

Many refinements have been made in the appointments of the bodies. A one-piece windshield effect provides better vision forward and the use of an entirely new windshield cleaner adds to the comfort of the driver and occupants during inclement weather by cleaning the windshield clear across. There are two cleaners operated jointly by suction from the inlet manifold. The speed of the wiper is set and not affected by varying engine speeds. By throwing the dash control to the left both cleaners are caused to

(Continued on page 618)



Top view and
vertical section of
Pierce-Arrow oil
filter



Series 36 Pierce-Arrow seven-passenger sedan, listing at \$5875

Peerless Broadens Line With a New "Six" in \$1800 Price Class

Model "90" offered in five body styles on 120 in. wheelbase.
3½ by 5 in. engine develops 70 b. hp. at 2500 r.p.m.
Novel method of insulating rear engine arms.

By Leslie S. Gillette

THE Peerless Motor Car Co. has added a third series of six cylinder models to its current line of four chassis. The new model, known as the "90" and developed to compete in the \$1800 field, fits into the line midway between the "6-72" and the newer "6-80" six cylinder models. Including the V-eight line, Peerless now offers 25 different designs, ranging in price from \$1395 to \$3795.

Among the innovations embodied in the "90" chassis are a method of insulating the engine rear supports by a rubber mounting, and a flexible rubber-fabric disk in the clutch plate to minimize transmission of crankshaft vibrations to the gearset.

Three Closed, Two Open Models

Five body models, including three closed and two open, form the line. In respect to body design, appointments and general appearance, the new car closely resembles the current Peerless models, while the chassis retains such features as the "L" head powerplant, hydraulic four wheel brakes, large balloon tires and conventional type axles which have characterized the previous models.

Two of the closed bodies, the standard sedan and the close-coupled sedan, list at \$1895, and the landaulet is priced at \$1995, while the prices on the coupe-roadster and sport roadster (both with rumble seats) have not yet been announced.

In the landaulet model, Peerless introduces the folding rear quarter type of body in the less than \$2000 class. A Pines "Winterfront" for the radiator is included in the regular equipment. All bodies are of composite construction. To permit of the use of wide, comfortable rear seats, the tread of the rear wheels is made 58 in., two in. greater than that of the front wheels. Fisher "VV" windshields are employed on both sedans, while the landaulet has a one piece swinging windshield. A wheelbase of 120 in. is employed for all bodies, the tire size is 32 by 6.00 in. and the weight of the standard sedan ready for the road is 3450 lb.

While the "90" powerplant has the same cylinder dimensions as that of the "6-72" chassis, it differs materially from it in details and it also is considerably lighter. Having a bore and stroke of 3½ by 5 in., it develops 70 b.h.p. at 2500 r.p.m. The car has a guaranteed speed of 70 m.p.h. A fuel mileage of 18½ per gallon is claimed.

A noteworthy feature of the powerplant is the method of insulating the engine rear arm on rubber blocks. As

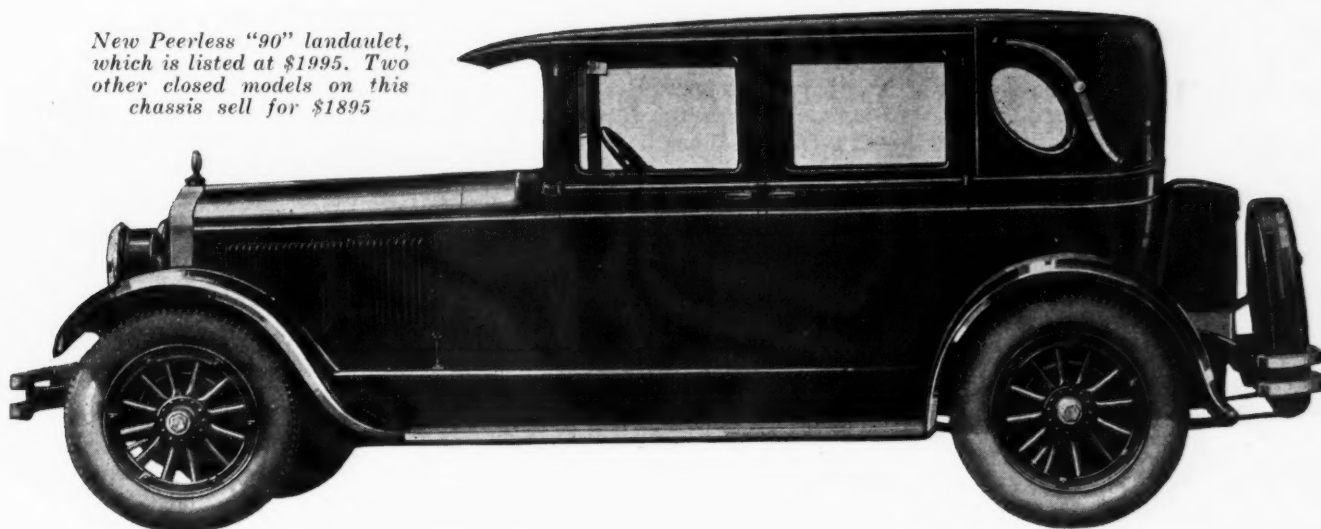
will be seen by reference to the accompanying views of the powerplant, the ends of the supporting arms at the flywheel housing are provided with faces set at an angle approximately 60 deg. Engine support plates riveted to the chassis side rails have a face set at the same angle to correspond with the supporting arms. When the engine is lowered into the frame a live rubber block 3¼ by 4¼ by ½ in. is compressed between the arm and the plate. On the under side of the latter there is an identical rubber block which is secured by a thick steel plate, held in place by four 7/16 in. bolts. These bolts pass from the engine arms through clearance holes in the engine support plates and into the thick plate on the inside of the support plate. The rubber blocks are contained inside the square formed by the four bolts, and the bolts do not pass through them. As the bolts do not touch any metal in passing through the clearance holes in the engine support and the lower steel plate is insulated from the frame by the lower rubber plates there is no metal connection between the engine rear supports and the frame. This arrangement, in addition to reducing the transmission of engine noises to the body, also provides a very secure mounting for the engine due to the wedging effect between the rear arms and support plates. To relieve the rubber mounting of any chassis strains, a heavy "U" shaped tubular cross member 2 in. in diameter is placed behind the rear supports and passes under the powerplant. Two brackets cast on the timing chain cover and bolted to gusset plates riveted to the side rails and the front cross member support the engine in front.

Part of Crankcase Aluminum

The upper half of the crankcase and the bell housing are formed integrally of aluminum, while the oil pan is of pressed steel and the cylinder block of cast iron, the head being detachable. Additional rigidity is imparted to the crankcase by carrying the oil pan flange 2¾ in. below the center line of the crankshaft. On the left side of the cylinder block a detachable cover plate is provided to permit inspection of the water passages and facilitate foundry operations. Seven bronze-back, bab-bitt-lined bearings are provided for the balanced and fully machined crankshaft. All main journals are 2⅜ in. in diameter, the length being as follows: Front, 2 3/16 in.; center, 1 5/16 in.; rear, 2⅞ in., and intermediates, 1¼ in. Thrust is taken on the front bearing.

Connecting rods of "I" section have their big ends babbitted centrifugally. The rods have a center to center length of 10 in., weigh 2½ lb. each and have big ends

New Peerless "90" landaulet, which is listed at \$1995. Two other closed models on this chassis sell for \$1895



2 1/8 in. in diameter by 1 9/16 in. long. In the upper ends of the rods a phosphor bronze bushing is provided for the floating pin which has a diameter of 1 1/8 in. and is finished by lapping.

Nelson type aluminum alloy pistons having the Invar strut are employed, having been introduced a short time ago in the larger "6.72" chassis. Three rings of 1/8 in. width are used, all located above the pin, the lowest ring being of the oil control type. Oil grooves are turned in the extreme lower end of the piston skirt and also on the center line of the piston pin. The piston weighs 17 oz. bare.

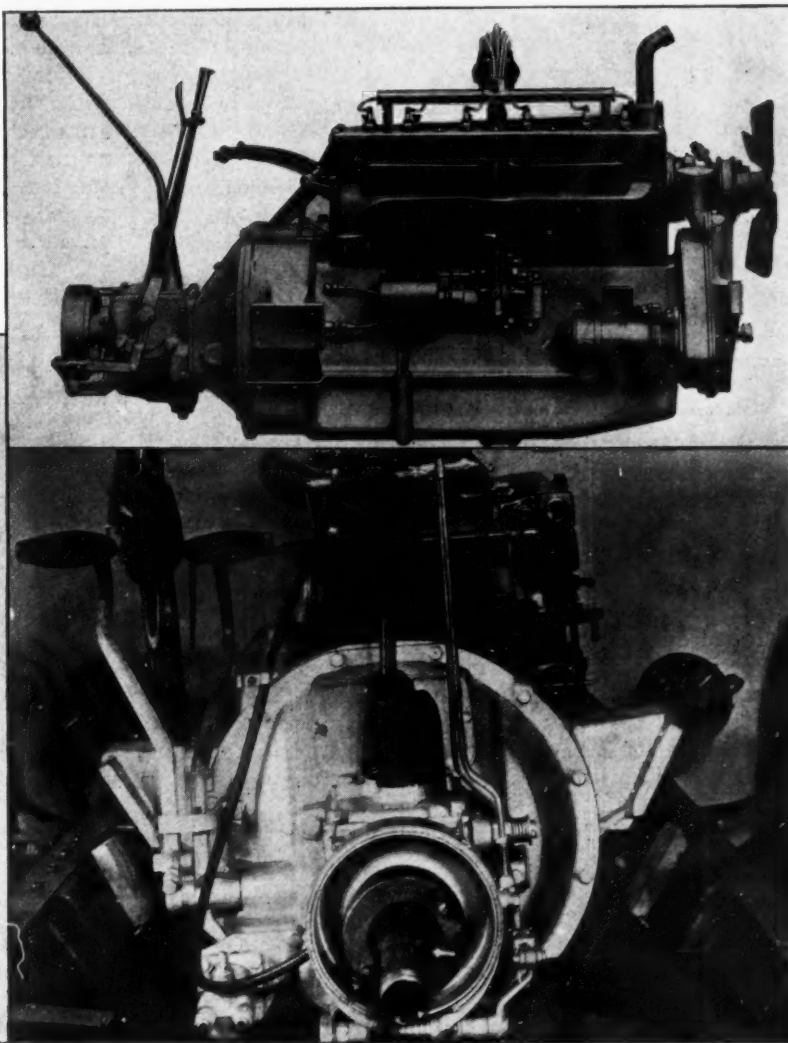
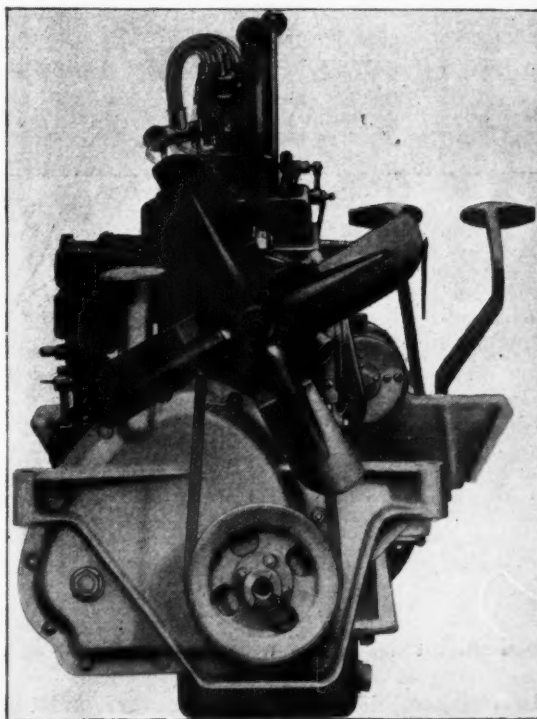
Drive to the camshaft and generator is by a Morse 1 1/2 in. low pitch chain, with adjustment for wear by swinging the generator mounting. Four bearings

of the following dimensions are provided for the center-drilled camshaft.

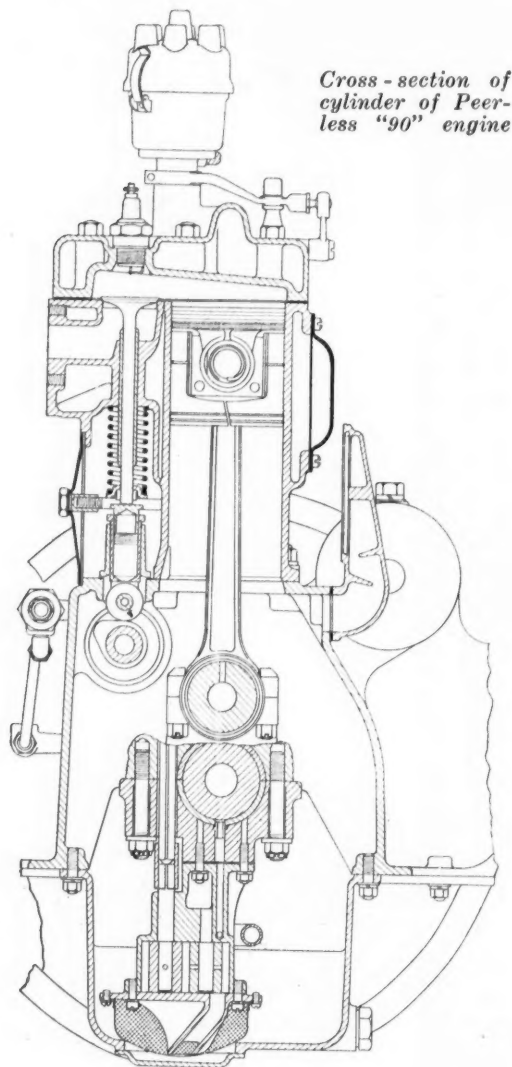
	Front	Second	Third	Rear
Diameter	2-5/16 in.	2-3/16 in.	2-5/32 in.	1-9/16 in.
Length	2-7/16 in.	1 in.	1 in.	2-1/32 in.

Valves are of integral design, the exhaust being of silchrome steel and the intake of special nickel steel. Plungers with cam rollers operate the valves. The latter have a head diameter of 1 11/16 in. and a lift of 11/32 in. The spring pressure is 110 to 120 lb.

Front, rear and side views of Peerless "90" six-cylinder engine



Water circulation is by a centrifugal pump which is formed in a unit with the fan and mounted on the front of the cylinder block, the drive being through a vee belt from a combined pulley and starting crank jaw bolted to the crankshaft sprocket. Adjustment for belt wear is by a movable flange on the fan pulley. The four bladed fan is 16 in. diameter. The water capacity



of the entire system is three gallons. The radiator is of the cellular type.

To insure a high pressure of oil in hot weather and at top speed an unusually large gear pump is fitted. The latter, which is mounted in the lowest part of the sloping oil pan and driven by a vertical shaft off the camshaft, is stated to give pressures of 40 to 50 lb. with thinned oil. By means of a manifold, oil is delivered to each of the main bearings and from there it flows through drilled passages in the crankshaft to the connecting rod bearings. Another lead delivers oil to the hollow camshaft through which it passes to the four bearings. The pressure relief valve is mounted on the right side of the crankcase close to the float type oil level indicator. Draining of the crankcase (which has a capacity of 9 quarts) is by a drain plug conveniently located on the side of the oil pan. Mounted on the dash is a Purolator model S-2 oil filter.

Exhaust and intake manifolds are formed separate. The hot-spot is cast integrally with the exhaust manifold and bolted to the square-sectioned, sharp-cornered intake manifold, the latter being immediately above the

exhaust. From the rear of the exhaust manifold a 2 1/4 in. exhaust pipe leads to the concentric type muffler. Fuel from the 17 gal. rear tank is delivered to the Stromberg OE-2 plain tube 1 1/4 in. carburetor by a Stewart vacuum tank, through an AC visible fuel strainer. A centrifugal type air cleaner, also of AC make, is attached directly to the carburetor intake.

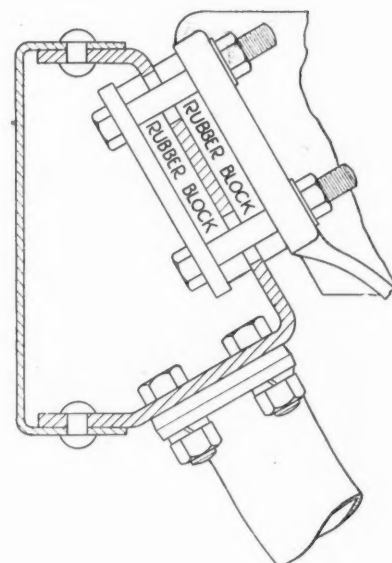
All three electrical units are of Auto-Lite manufacture. The ignition distributor, mounted on top of the engine and driven by the same vertical shaft which operates the oil pump, is of the single breaker type and provided with a semi-automatic advance control. The third brush generator with the cut-out is mounted on the right side of engine, while the starter is on the left side and engages with the integrally formed fly-wheel teeth by a Bendix drive. The high tension leads from the distributor to the 7/8 in. Champion spark plugs pass through a metal conduit. Every engine after being "belted-in" and before being dispatched to the chassis assembly line, is tested in a specially constructed silence room.

Clutch Vibration Damper

Embodied in the Borg and Beck 11-OL single plate clutch is a flexible rubber fabric insert which acts as a vibration damper and tends to prevent vibration of the crankshaft from reaching the gearset. The outer rim of the clutch, which is in direct contact with the asbestos facings, is secured to the hub by a fabric type disk, similar to that used for universal joints, the fabric disk itself being riveted to both the rim and the hub. This disk is slightly flexible and acts as a cushion.

The Detroit Gear Co., transmission in unit with the engine is similar to that employed on the "80" model. The constant mesh and second speed gears are 7-pitch while the low and reverse gears are 7-9 pitch. All gears are of Uma steel with the mainshaft nickel steel. The splined shaft is mounted on Hyatt roller bearings at the front and on a ball bearing at the rear, while the secondary gears rotate on bronze bushings. Gear ratios are as follows:

High	1.00 to 1	Low	3.11 to 1
Reverse	3.78 to 1	Second	1.70 to 1

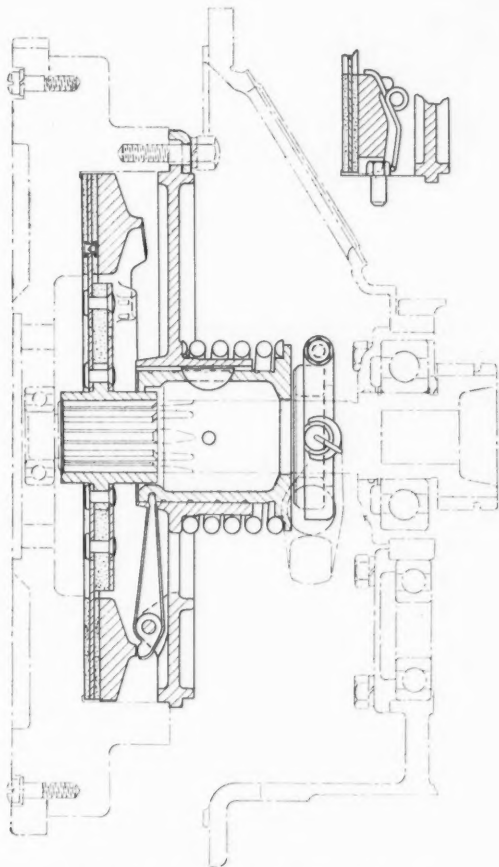


Block support of rear end of Peerless engine

A stamped shifter does away with separate forks and rods.

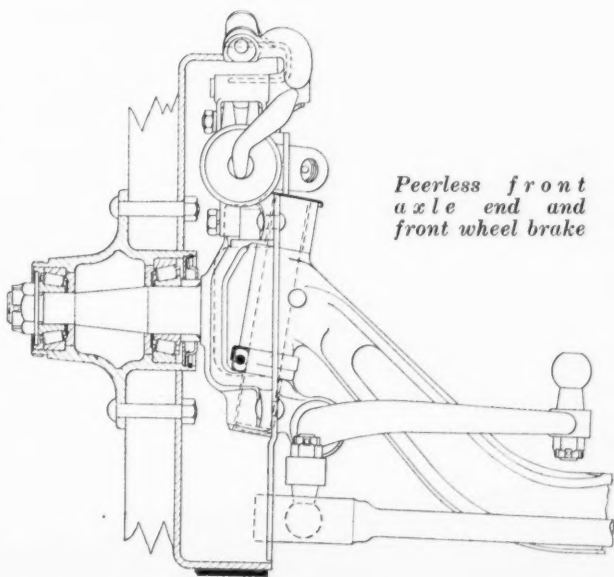
Drive to the semi-floating Columbia rear axle is

through two oil-tight trunnion type universal joints and a tubular propeller shaft. The housing is of the pressed steel banjo type and bolted to the malleable iron carrier which contains the integral pinion shaft and differential assembly. Taper roller bearings are used throughout the rear axle. The spiral bevel gears



Section of Peerless clutch with rubber insert in driven disk

provide a standard ratio of 4 5/11 to 1 for all body models. The Hotchkiss form of drive is employed. The front axle is of the reversed Elliott type with the steering spindles inclined 2 deg. Steering knuckle thrust is taken by ball thrust bearings.



Peerless front axle end and front wheel brake

Four-wheel hydraulic brakes of the Lockheed contracting type operate on 14 in. brake drums, the width of the bands being 2 in.. The contracting emergency brake mounted behind the transmission has a drum 7 in. in diameter by 1 3/4 in. wide. Including the special tubular member behind the engine, the frame has five cross members. The straight taper frame with a slight kick-up over the rear axle has a channel section 7 in. deep made of 1/8 in. stock. A "U"-shaped cross member under the radiator and the diagonal "U"-shaped gusset plates used for providing a support for the front of the engine give the forward end of the frame an unusual degree of rigidity which is said to minimize the tendency for the front wheels to tramp.

Ross Steering Gear

Front and rear springs are both of the semi-elliptic type and have main leaves of alloy steel. The front springs are 37 3/4 in. long by 2 in. wide and have 11 leaves, while the rear are 54 1/4 in. long by 2 1/4 wide and have 8 leaves. Springs are set directly under the side channels. Shackle bolts are all 3/4 in. in diameter and provided with a coiled spring to compensate for wear. The steering gear is a Ross unit of the cam and lever, semi-reversible type having a ratio varying from 12 to 1 at the ends to 15 1/2 at the center. The steering wheel is 18 in. in diameter, and carries the usual controls in the center. The headlights are of the two filament bulb type and mounted on the fender cross bar, thus eliminating the necessity for right and left headlights. Wheels are of the artillery type, with Firestone "A" rims.

The following items are standard equipment on all models in the "90" line: Watson stabilators front and rear; Pines winterfront bumpers and rear bumperettes, moto meter dash type gasoline gage; automatic windshield cleaner; rear view mirror stop light and cowl lights. Sedan models, in addition, have dome lights and silk shades for the rear windows. A removable one-man top and windshield side wings are included in the equipment of the roadster model.

New German Racing Track

GERMANY is immensely active in developing her motor sports and has great international ambitions that are being fostered by her authorities. Symptomatic of this is the working out of one of the greatest racing track schemes the world has so far seen. Not only have the plans been made but most of the work has already been completed. The new track has wholly a road character and is situated in one of the most secluded and rugged parts of the German Rhineland called the "Eifel."

The course will be called the "Nurburg Ring," after an old castle ruin which is a prominent landmark within its circuit.

The track will be ready by next spring and it will then offer four road circuits that can be used together as one or separately in various combinations, giving lengths of 2 km., 9 km., or 29 km. (18.02 miles), respectively. The road, which will be entirely reserved to automobile and motorcycle racing, has no crossings, other roads being lead through tunnels underneath or over bridges above it as is the case in Monza. It is over 30 ft. wide, has a tar surface, 170 banked turns, a difference of level within the circuit of over 300 meters, inclines of 17 per cent and 27 per cent (in one part 5 km. long) and declines of up to 11 per cent.

Oakland Manual Tells Dealers How to Sell Used Cars

Complete information on how to organize and conduct a used car department issued in "meaty" form with specific policies and methods laid down for guidance.

By Norman G. Shidle

IN a used car manual recently prepared to aid dealers in the handling and selling of their used vehicles, the sales development department of the Oakland Motor Car Co. urges upon the Oakland retailers adherence to a number of specific policies and methods, among which the following are of special interest:

1. *Used cars should be displayed indoors.* Used car lots may be necessary at times for excess stocks, the manual says, but adds that "the additional expense necessary for frequent washings, polishings, etc., due to outdoor display, will go a long way toward rental of a building for the express purpose."

2. *A buyer should have the option of turning in his used car within fifteen days after purchase as part (or full payment if the selling price is the same), on any other used car; or to apply on a new car provided the used car recently purchased is in the same condition as when delivered.*

3. *Used car stocks should be limited to about 8 to 10 per cent of the new car allotment to be sold at retail.*

4. *No used car appraisal should be made until the prospect has driven the new car which is being sold.* The manual recommends that dealers establish and enforce as far as possible a house rule to this effect.

5. *Dealers should get in touch with all neighborhood garages and repair shops and offer them "an attractive commission" on the sale of each used car effected through their cooperation.*

6. *Fixed selling prices on used cars should be maintained "as far as is possible."*

7. *The dealer should arrange to service all the used cars which he sells.* "It means," the manual points out, "not only increased profit for the service department, but has a marked influence in the development of used car business and new car sales."

Numerous other recommendations and suggestions, of course, are contained in the manual as well. Those mentioned seem particularly significant, however, from the standpoint of policies in used car handling.

The used car manual has been issued simply as a part of the regular used car merchandising activities which has been conducted for some time as a function of the Oakland sales development department.

The manual as a whole carries out the principles upon which the literature of this department is being built in general, embodying to a high degree the qualities of practicality, conciseness and obvious adaptability to actual dealer problems.

In addition to the recommendations chosen as of special interest and already mentioned, the manual makes a number of other thoroughly sound, although less unusual, suggestions and urges them for adoption by dealers. Among these are:

1. Used car selling should be considered as an integral part of the business of an automobile dealer, not as a necessary evil. The used car should have behind it the same intelligent planning, sound operation, and merchandising drive as is accorded to the new car.

2. A separate department for handling and displaying used cars is desirable.

3. In determining the amount to be allowed for a used car the dealer must consider, not only reconditioning cost, but also the expense of the used car department itself as involved in the handling, advertising and selling of used cars.

4. A Certificate of Good Value—which is provided by the factory—should be given to each purchaser to show the general condition of the car at the time the purchaser takes delivery.

5. Dealers should publish some real used car advertising; not merely lists of used cars for sale.

6. For the purpose of keeping records of prospects and the progress being made in connection with an attempted sale, a used car prospect and salesman's control system should be installed.

All of the foregoing recommendations, as presented in the manual, are a part of a complete systematic presentation of how the dealer can profitably handle used cars, the subject being treated in logical divisions, such as personnel, filing systems, accounting for used cars, selling and overhead expense, buying the used car from the new car prospect, reconditioning, etc. In all 25 of these divisions of the problem are covered, but the conciseness of the treatment is indicated by the fact that the actual text of the manual covers only 14 single spaced typewritten sheets. When it is recognized that the subject is treated specifically and concretely—not merely in generalities and all-inclusive statements—

the high degree of effectiveness of the presentation becomes apparent.

In addition to the text material, the manual contains:

1. A checking sheet to be used in checking the degree to which a given dealer is following out a constructive used car policy.

2. A form on which a dealer may briefly describe his used car stock. The purpose of this form is to make readily available for every salesman a complete knowledge of what used cars are on hand.

3. A form which dealers are urged to use in making requests to the factory for used car assistance.

4. A used Car Record Card for dealer's filing and record purposes.

5. Sample copy of the Certificate of Good Value.

6. Sample copy of a complete used car appraisal form.

7. Sample copy of used car order blank.

8. A series of suggested form letters for the dealer to use in direct-by-mail selling of used cars.

9. A detailed outline of how to conduct several types of special sales, contests and parades designed to move used car stocks.

Some of these forms are shown in accompanying illustrations.

The data provided for dealers on several of the 25 topics treated is especially interesting. Used car accounting records, the manual recommends, for example, should contain:

(a) Name of individual traded-in, repossessed or purchased from.

(b) Address.

(c) Telephone.

(d) Used car stock number.

(e) Date received.

(f) Credit memo number.

(g) Make, type, year built, car and engine numbers.

(h) License number.

(i) Date insured, policy number and where stored.

(j) Date insurance is cancelled.

(k) Amount allowed the customer.

(l) Cost of conditioning.

(m) Appraisal by (name).

(n) Part payment for new or used car.

(o) Make, type, car, engine and stock numbers of car sold, against which the used car was received.

(p) Date of sale.

(q) Buyer's name, home and business addresses and telephones.

(r) Invoice number of sale.

(s) Name of salesman who sold new car.

(t) Name of used car salesman.

Discussing the matter of reconditioning, the manual says:

"The extent to which reconditioning should be ef-

The image displays three sample forms from the Oakland Manual. The top left form is a tag titled "GOOD WILL OAKLAND Says" featuring a cartoon character and a list of car components to be checked (Engine, Rear Axle, Brakes, Ignition, Transmission, Car Tightened, Battery, Steering, Oiled and Greased, Valves Ground). The top right form is a tag titled "GOOD WILL OAKLAND Says this car is SOLD" with the same cartoon character and the text "WINNING AND HOLDING GOOD WILL". The bottom form is a "Certificate of Good Value" with a cartoon character and a section for "Facts about this car" including Dealer Stock No., Make, Serial No., Engine No., Former Owner, Address, Price, Down Payment, Monthly Payment, and Remarks. It also includes a section for "This is to Certify, that in accordance with the terms of sale covered by Purchase Order" and a signature line.

UPPER LEFT: Tag which has been designed for use of Oakland dealers. Attached to a used car, it gives prospective buyers information regarding the history and condition of the machine; also the sales terms. UPPER RIGHT: Tag which Oakland dealers place on a used car when it is sold. BELOW: Certificate of Good Value which Oakland dealers give to every purchaser of a used car

fects depends largely upon the miles of transportation left in the car. The expense of reconditioning should be estimated to an extent necessary for resale purposes. It is not recommended that the used car be rebuilt but that such reconditioning, refinishing etc., be done as will insure resale at a profit and keep the purchaser's confidence in the dealer.

"Fair performance or operation, with an appeal to the eye, are the dominant facts in used car selling."

After listing a number of specially important points which always should be taken care of in reconditioning a car, the manual goes on to discuss the question of demonstrating used car. "Taking the prospect for a short ride," it says, "should be the extent of the demonstration, but it should be remembered that the sale hinges on the result of this ride. The used car prospect is a skeptical individual and loses interest in both car and institution with the first failure of performance. The sale is lost if explanations or apologies must be made."

Another useful section of the manual is that which lists the advantages and sales arguments in favor of the purchase of a used car, as follows:

The impelling motive in the ownership of an automobile, whether new or used, is PERSONAL TRANSPORTATION.

A good used car at greatly decreased cost affords this advantage.

The average life of an automobile is 6½ years of use. It is easy to determine the advantages provided in a good used car when honest figures are available. The salesman should make a strong feature of this point in selling.

The used car is a logical purchase for the "first time" owner. The salesman should keep this in mind.

On price comparison the used car offers the same advantage in the nature of comfort,

speed, power, etc., as a new car at anything like the price.

The purchase of a used car saves the expense of taxes and initial charges involved in the purchase of a new car.

The accessories supplied on a new car will be had practically without cost.

The moment a new car leaves the dealer's place of business in the hands of an owner, it becomes a used car. Therefore, all owners drive used cars.

Discussion of this used car manual would not be complete without mention of "Goodwill Oakland," the shrewd pleasant looking old codger, whom the sales development department has brought into being to help, tells prospects why they should buy used cars from Oakland dealers. His picture appears on the used car order blank and on the Certificate of Good Value, while his kindly face and homely, pointed remarks about used car buying is being used in connection with all sorts of Oakland used car advertising and merchandising.

The purpose of creating Goodwill Oakland was to individualize Oakland's used car merchandising and to provide an especially striking medium through which to present to the public constructive ideas on used car values. Goodwill Oakland already has come to be more or less of a trademark for Oakland used cars and his value bids fair to increase as he grows older.

Summarizing, in the introduction to the manual, the basis upon which the used car problem should be attacked by dealers, the manual says: "Profit from the used car department should be expected and worked for just as earnestly and carefully with a definite policy in operation, as in the new car department."

"It must be recognized that new car sales and used car sales, being so closely allied, the progress of one must parallel that of the other."

And the purpose and scope of the manual as a whole is summarized in the statement: "This used car manual will serve as the dealer's guide in organizing and conducting a used car department."

Form DA 29 3-26 BMM		USED CAR RECORD CARD	
Traded in from _____		Stock No. _____	
Repossessed from _____		Car No. _____	
Home Address _____		Phone _____	
Office Address _____		Phone _____	
Date Received	Amount Allowed	Appraised by	
Credit Memo No.	Conditioning:	Part Payment for	
Make	Repair Order No.	New <input type="checkbox"/> Used <input type="checkbox"/>	
Type	Repair Order No.	Make	
Year	Repair Order No.	Type	
Car No.	Total Conditioning Cost	Car No.	
Engine No.	Total Cost for Inventory	Engine No.	
License No.		Stock No.	
Body Color			
Tires	Sold for	Date Sold	
	Total Cost	Sold to	
Date Insured	Gross Profit	Home Address	
Policy No.		Phone	
Stored:		Office Address	
Warehouse <input type="checkbox"/>		Phone	
Show Room <input type="checkbox"/>		Invoice No.	
Insurance Cancelled		Salesman	

Record card which is used by Oakland dealers as a complete history of each used car transaction from the trade-in or repossession to the resale

Just Among Ourselves

Cotton Prices and Automobile Sales

THE overproduction of cotton and the resulting decline of cotton prices to well below 15 cents a pound, probably is the most significant economic change of the last twelve months from the standpoint of possible effect on automobile sales. Representing as it does the fundamental source of income of several of our important Southern states, the condition of the cotton crop is likely to have an important bearing on automobile and truck buying in several important areas. The present situation of the cotton farmer is quite unfavorable. Government officials, business reviews and general observers agree on this point. There was a heavy carry over of cotton from last year's crop. This carry over, combined with a diminishing use of cotton in dress goods and other lines, has helped to create a condition of rather serious overproduction.

* * *

"There's Just Too Darned Much Cotton"

ONE high government official stated the situation succinctly while talking informally the other day, when he said: "There's just too darned much cotton, that's all." He went on to show how cotton men in some states are particularly unfortunate because they have had a low yield per acre despite the general overproduction which has made prices low. "In Texas," he said, "the yield of cotton this year has been about 100 lb. to the acre as against a normal average of about 125 lb. to the acre. Coupled with the low prices for which cotton is selling, such a yield is likely to be ruinous." The crop in Georgia, South Carolina and Tennessee also seem to have been below

average. It is true, as United Business Service points out, that "the cotton manufacturing industry will reap an unquestioned advantage, and, at lower prices, the use of cotton goods ultimately will broaden out." Nevertheless, as this same service says, "the cotton farmer is left in a poor position, and this cannot fail to show in reduced paying power in agricultural sections."

* * *

Still, They Haven't Stopped Buying Cars

THUS far it is difficult to find any direct, adverse effects on automotive buying as a result of the unfavorable cotton situation. Correspondents, after examining automotive sales records and talking to members of the local trade, report that cars are continuing to sell as a fairly good pace behind September in several instances, but ahead of October, 1925, in practically every instance. Collections are reported as being better than usual in Birmingham, Ala., Dallas, Texas, and New Orleans, La. And used car stocks, while getting a bit more difficult to move in some cotton belt sections, are reported to be offering little more trouble than they did at this time a year ago. On top of these indications come detailed reports from representative automotive jobbers in the cotton area indicating that business continues fair to good in practically all of their lines.

* * *

Industrialization Helping Business

WHILE these optimistic automotive reports seem somewhat hard to reconcile with the pessimistic reports of the condition of the cotton farmer which come from all gen-

eral agencies, several modifying factors are to be borne in mind. To begin with the industrialization of certain sections of the South has led to greater diversification of income sources in recent years and tends to leave the cotton areas with at least some reasonable degree of buying power in certain elements of the community even when the actual cotton producers are having a hard time of it. Then too, the motor car and the motor truck gradually have become an essential part of the equipment of thousands of people in the rural sections of the cotton belt as elsewhere, with the result that automotive buying is the last instead of the first buying to be discontinued in some instances at least. It is to be remembered also that practically every other line of farming is in relatively good shape at this time, with the exception of the apple and fruit producers. Hog men are doing well, wheat is good, beef is fair and the dairy business is in fine condition.

* * *

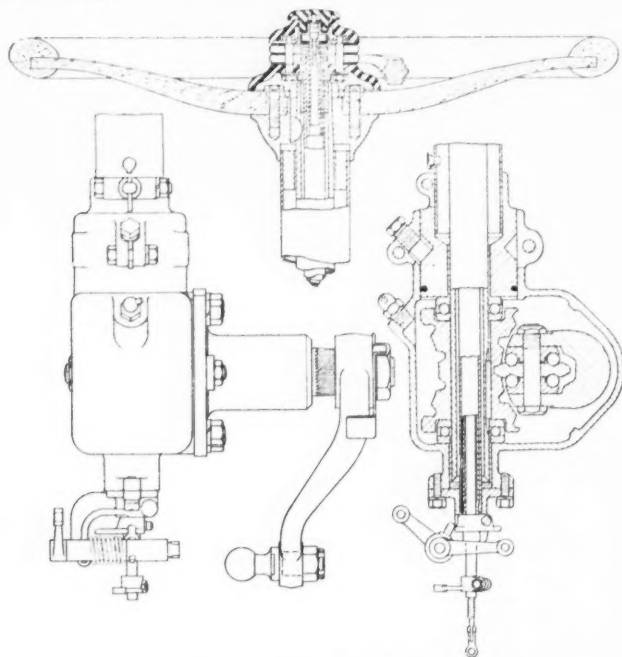
Farmer's Purchasing Power Still High

THE purchasing power index of the farmer's commodities, while it has sunk somewhat in the last few months, still is better than it was a year ago at this time and high government officials, close to the agricultural situation, look forward to a steady market in the rural areas for some time to come, particularly for farm implements, automobiles and trucks. Thus, while it seems likely that automobile sales may soon feel some ill effects from the unfavorable cotton situation—which still is basic despite some degree of diversification—there is justification for belief in a continuance of sound automotive business in the rural areas in general.—N. G. S.

Pierce-Arrow Adopts Balloon Tires

(Continued from page 609)

operate on the left-hand half of the windshield, while, by turning the control to the center, one will operate on the left half and the second on the right half, giving clear vision the full width of the shield. When shut off, both wipers are out of the way on the left-hand side.



Steering wheel and steering gear

The hardware in the closed cars, which is of Flemish Gothic design, is heavily plated with Roman gold. Window rails are of genuine mahogany, highly polished, and gold-headed screws and gold washers, conforming in finish with the hardware, hold the strips in place. A dainty vanity case, covered with gold-embossed leather and conforming in design with the hardware, is provided. The vanity also serves as an attractive holder for a gold watch which is mounted in the center. Frames of interior lighting fixtures are also in gold.

A belted effect on the exterior of the bodies tends to give a more streamline appearance. Window frames

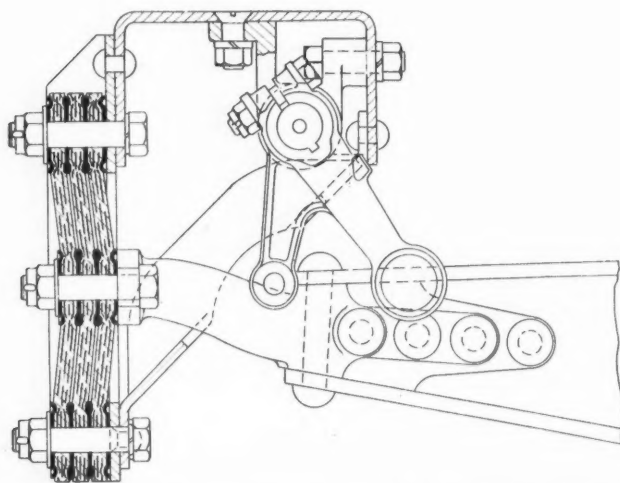
also have been recessed slightly, making it possible to work out attractive two-tone color effects around the windows. The roof of the bodies have been lowered 3 inches, and this, with the 2 inches gained in lowering the chassis, makes the car about 5 inches lower than its predecessor. The closed car, when loaded, measures approximately 75 in. in height. The use of straight-grained Northern white ash for body frames is continued, while the Series "36" is introducing a more extensive use of laminated joints at all points where strain occurs. Aluminum sheets, hammered to contour, are used for the body panels.

It is interesting to note that Pierce-Arrow is one of the last big producers to adopt lacquer finish in the place of varnish. Lacquer, rubbed to a high polish, which makes it practically impossible to detect from varnish, is now standard. The new cars are offered in a range of 26 standard colors for immediate delivery, but the purchaser has the option of selecting any color he chooses without additional cost. Upholstery is also optional. Mohairs, velours and broadcloths are offered as standard. Needle point medallions are extra.

The following equipment has been adopted as standard: S. O. S. Sparton horn, Hoo Dye shock absorbers, nickel-plated 2 in. front bumper, nickel-plated Winter-front radiator shutters, and nickel-plated triple combination tail lamp.

Following are the prices on the new "36" model:

Model	List
Chassis	\$4875
Seven-Passenger Enclosed Drive Limousine	5875
Seven-Passenger Sedan	5875
Seven-Passenger Enclosed Drive Landau	6000
Seven-Passenger Sedan Landau	6000
Runabout	5875
Four-Passenger Touring	5875
Seven-Passenger Touring	5875
Three-Passenger Coupe	6375
Coupe Sedan	6375
Four-Passenger Vestibule Sedan	6375
Four-Passenger Four-Door Sedan	6375
Four-Passenger Sedan Landau	6600
Four-Passenger Enclosed Drive Landau	6600
French Limousine	7500
French Landau	8000

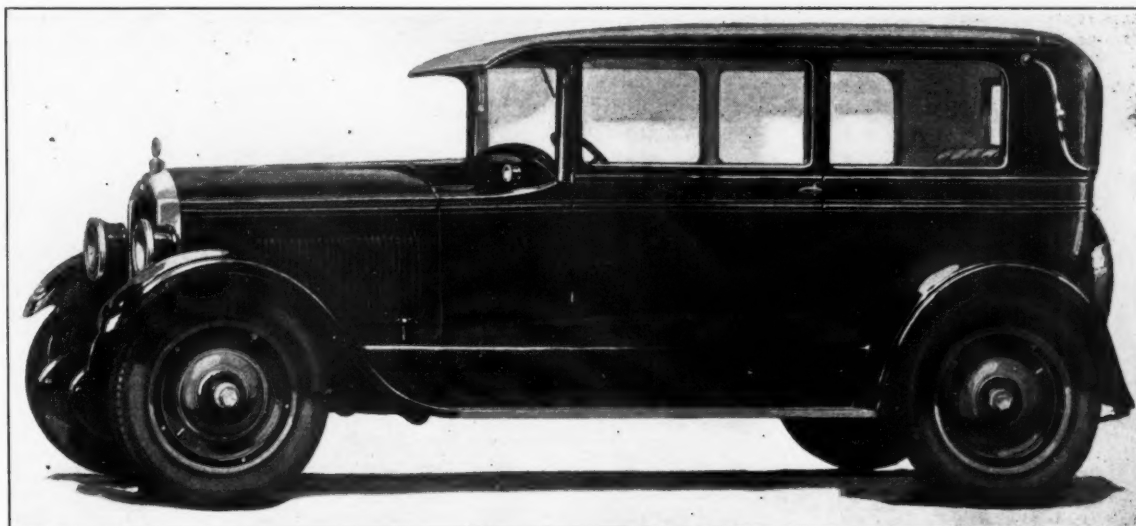


Torque arm front end support on rubberized fabric plates

STEADILY decreasing unit prices for British cars indicate a growing realization by British manufacturers of the vast field of exploitation ahead of them in the United Kingdom, Acting U. S. Commercial Attache Mitchell at London declares in a report to the Department of Commerce. The unit prices have dropped in the past four years 37 per cent, the report states, and still is on the decline.

Analyzing the attache's figures, the Automotive Division, Department of Commerce, shows that, where there is an auto to every 5.7 persons in this country, there is only one car to every 55 inhabitants of the United Kingdom. Fully half the cars manufactured in Great Britain five years ago still are in use, the majority by their original owners. This limits the used car supply and, therefore, the distribution of automobiles generally. There are at present 650,000 automobiles in operation in the United Kingdom, and they are owned by 3 per cent of the population. Twenty per cent of the population of the United States own cars.

A two-door landau brougham listing at \$1395 is a new addition to the 115-in. Paige line. It will be noted landau bows are provided on the leather covered rear quarter



Paige Adds Five New Body Models, Increases Engine Bore

COINCIDENT with the introduction of five new body types, three on the 115 in. and two on the 125 in. Paige chassis. The Paige Detroit Motor Car Co. has announced several mechanical changes. All Paige cars are now being put out in brighter colors and with new items of equipment. Several of the closed models have steel and wood bodies supplied by the Briggs Mfg. Co. Color inserts around the windows are featured on certain of the models.

Among the mechanical changes are an increase of $\frac{1}{8}$ -in. in the bore of the engine in the 125-in. chassis, the adoption of Nelson aluminum alloy-invar struts pistons for the larger engine and the provision of rubber-fabric cushion disks in the clutch.

By the increase in the bore of the 125-in. model engine to $3\frac{3}{8}$ in., and the adoption of aluminum pistons, the power output has been increased approximately 10 per cent. An unusual feature is the use of five piston rings all located above the pin. The three top rings and the bottom one are $\frac{1}{8}$ -in. wide each, while the fourth ring is $\frac{3}{16}$ -in. wide. The two lowest rings, having a notched bottom edge, are of the oil-sealing type.

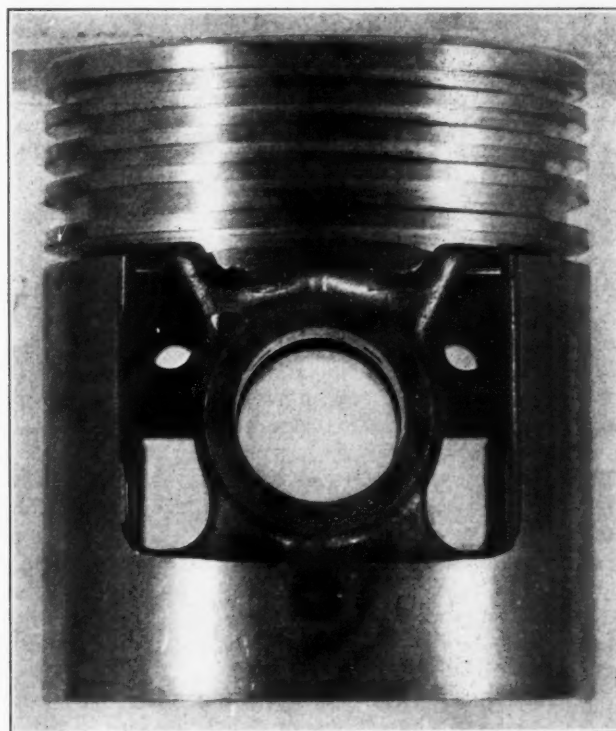
The new Nelson pistons weigh only 16 oz., as compared with 25 oz. for the former cast iron pistons of $\frac{1}{8}$ -in. less diameter. Connecting rods have been lightened slightly due to clamping the pin in the rod.

Quieter operation at all speeds and a smoother drive have been obtained by inserting two rubber-fabric disks between the two driven disks and the clutch hub on the Long make clutch employed on both Paige chassis.

Copper strip replaces that of brass formerly employed in the McCord radiator. The diameter of the fan has been increased by 1 in. to 18 in., and the speed of the fan reduced at the same time, for quieter operation.

The new bodies on the 115-in. chassis comprise a Landau-Brougham at \$1395 a four-door sedan at \$1540 and a four-passenger roadster with rumble seat at

\$1540. A seven-passenger touring car, developed primarily for the export field and listing at \$1655, and a four-passenger coupe priced at \$1995, are the two new bodies on the larger 125-in. chassis. A feature in connection with the coupe model is the latch for the folding rumble seat, which can be operated from the driver's seat. All the new models are finished in two tones of lacquer with various shades of blue.



With the enlarged cylinder bore of the engine on the Paige 125-in. chassis, Nelson type aluminum pistons having the Invar strut are employed. An unusual feature is the use of five piston rings

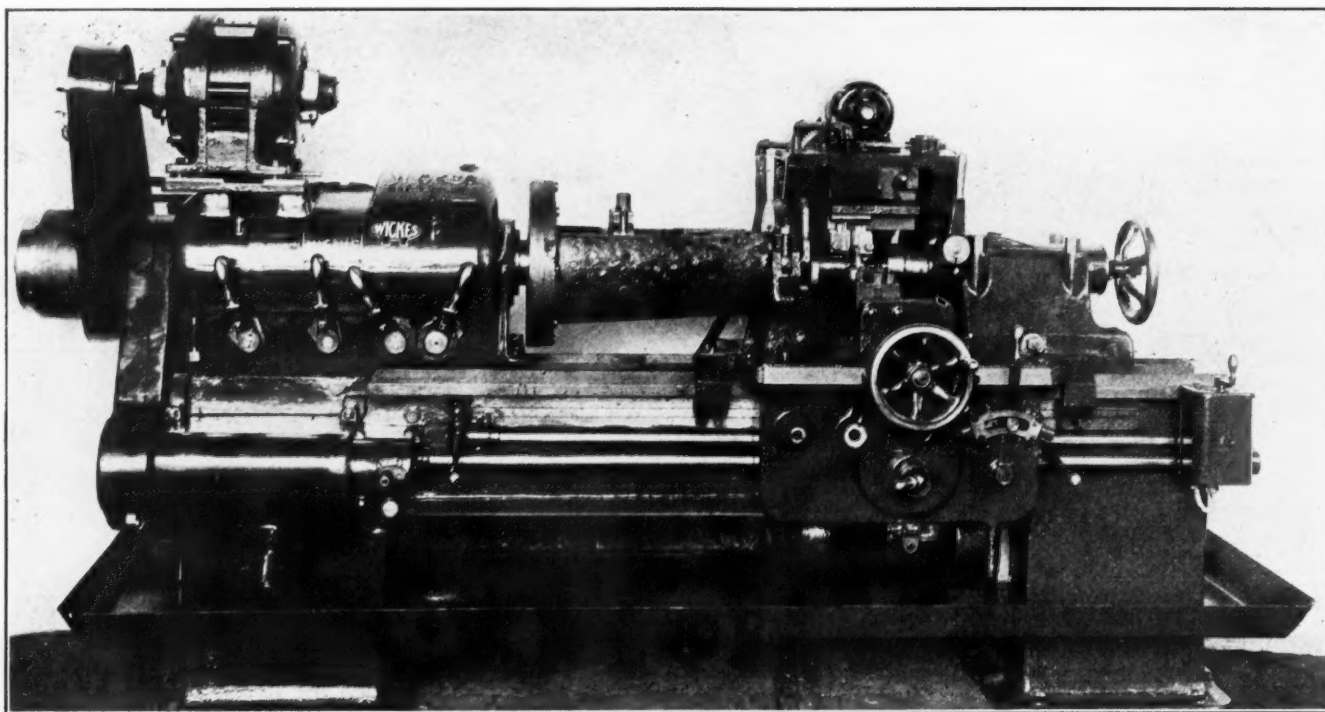


Fig. 1—Wickes "20" semi-automatic crankshaft lathe

Special Semi-Automatic Lathe Developed for Machining of Crankshafts

Wickes Brothers product equipped throughout with heat-treated chrome nickel steel gears and provides twelve spindle speeds. Rear tools carried on inverted slide.

A SPECIAL lathe for machining the center bearing, flange end and front end of automotive crank shafts has been developed by Wickes Brothers of Saginaw, Mich., and is referred to by the firm as its "20" semi-automatic crankshaft lathe.

Fig. 1 herewith shows a general view of the machine, which is tooled up for straddle-facing the flange, turning the outside diameter of the flange, and forming the oil groove and the oil-throwing ring. Fig. 2 shows the machine tooled for machining the rear bearing, flange, oil groove and oil-throw ring, while Fig. 3 shows it tooled for cheeking, turning, filletting and shouldering the front bearing and the front end of the crank.

This machine is arranged with silent chain drive from a 7 hp. constant speed, 1200 r.p.m. motor. The headstock is equipped throughout with heat-treated chrome nickel steel gears and provides twelve spindle speeds. The feed box provides eight feeds. The machine is arranged for both power cross feed and power longitudinal feed, with automatic longitudinal and cross feed stops.

Automatic cross feed changes are also provided. That is to say, when starting the cross feed, which usually requires removal of only a small amount of metal, the cross feed is rather heavy; as the tool bits move in toward the finished diameter of the crank and the cut becomes much heavier, the feed is automatic-

ally reduced, in order not to overload the tool bits and the machine.

It will be noted from the illustrations that the rear tools are carried on an inverted slide. This permits the chips to be easily carried away without interference with the cutting tools or cross slides.

With the tooling set-ups as shown in Figs. 1 and 3 both the front and rear tool bits are fed straight in toward the center without longitudinal movement, while with the tool set-up shown in Fig. 2 the front tools are fed longitudinally at the same time that the rear tools are fed in toward the center. In each case the crankshaft is supported on one of the center bearings by means of a steel roller type steady rest and the crankshaft is driven by means of a suitable drive head. This arrangement of steady rest and drive head prevents deflection of the cranks on extremely heavy loads.

The foot stock is of extra heavy design and is provided with an anti-friction live center. The construction of the entire machine as well as of the back tool housing, which carries the rear tool bits, is very rigid, which permits the taking of extremely heavy cuts.

In addition to the features mentioned above, this machine is provided with the Wickes patented electric rapid cross traverse to the tool bits. The controller for the rapid cross traverse motor is mounted near the apron convenient to the operator; by means of this,

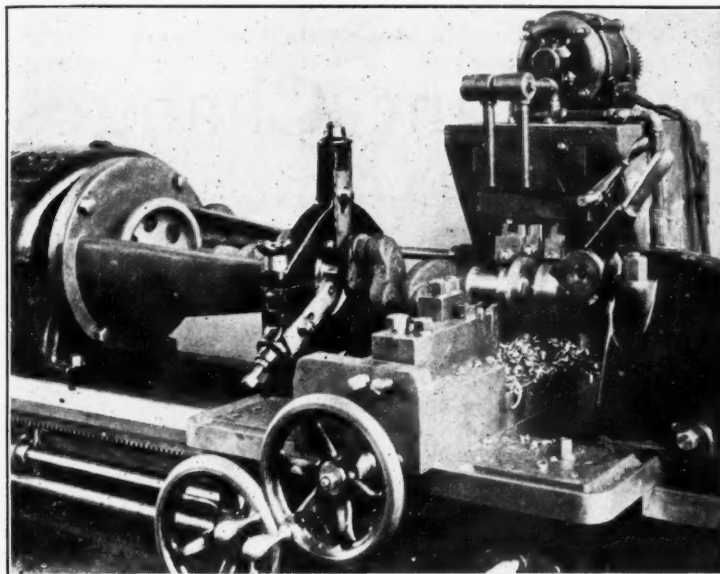


Fig. 2—Lathe tooled up for machining rear bearing

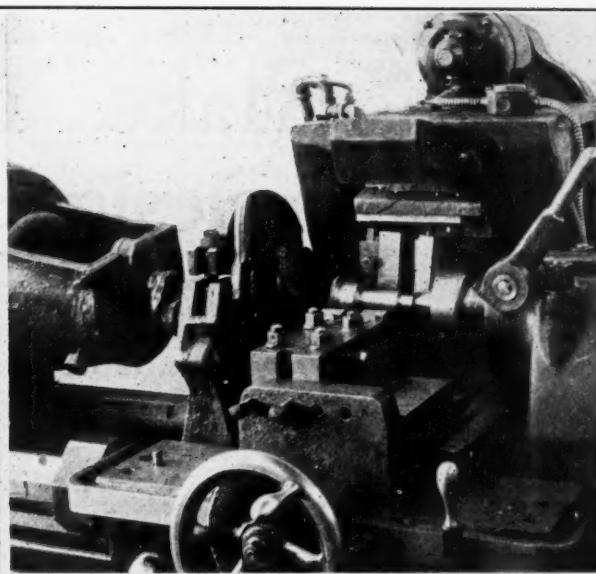


Fig. 3—Tooled up for machining front end of crankshaft

the tools are brought to the cutting position very quickly and after the completion of the cut are again opened to the unloading position in a very few seconds. The machine is provided with a suitable coolant pump and tubing, and with chip pan.

We are informed that several of these machines have been in service in automobile plants for upward of two months, and that their rigidity has made it possible to take exceedingly heavy cuts and thus speed up production.

Citroen to Continue Tractor Production

INCREASED production of the Kegresse-Hinstin type of flexible creeper track automobile is being planned, according to Andre Citroen, who says there is no intention of abandoning this type of machine. Since stopping production of his 5-horsepower two-passenger light car, in order to concentrate on a larger model, Citroen has reorganized his works in and around Paris, and has tooled up the former Clement-Bayard factory, in which the small car was built, for the production of his creeper track machine.

At the present time the output is 50 per cent for military purposes and 50 per cent for the various civilian services in which a flexible creeper track machine has advantages over the wheel type. It is understood that Citroen is working in conjunction with Schneider, the big French armament works, for the development of tractors for hauling field artillery. The greatest military use of the machine, however, which has been supplied to every European country, as well as to the United States, the South American Republics and to China and Japan, is as a very mobile unit for machine guns and light artillery.

A government monopoly has recently been granted to the Societe d'Exploitation d'Auto-Chenilles for the mechanical haulage of canal barges on State-owned waterways. Possessing about three thousand miles of canals, particularly in the north and the east, it has been realized that there is every advantage in substituting tractors for horses, and it is on condition that the Citroen-Kegresse flexible creeper track machine is used that this haulage monopoly has been granted.

Going into operation seven months ago, with about half a dozen machines, forty tractors are now operating along the canals of northern France, from Calais to St. Omer and Bethune, and one fleet of thirty is being

used over a length of waterway not exceeding fifty miles. The results have been so satisfactory by reason of the greater efficiency of the canals and the lower cost of maintaining tow paths, that it is intended to extend this type of haulage to other parts of northern France and also to the Saar coal and iron fields and to the various eastern canals linking up with the Rhine. A normal Citroen-Kegresse type of machine is used for this work, with a special type of tow hook and water ballast tanks to give required adherence, according to load hauled.

An all-purpose rubber track machine for agricultural use is now being developed by the Citroen Company. Owing to its higher initial cost, comparatively few machines have been sold for farm work. The model being experimented with will be much cheaper to produce, and in addition to being capable of all normal tractor work on the land it will have the road speed ability of the normal type of light truck. It is maintained that there is an immense potential market for a machine of this type on the Continent.

On the initiative of Chambers of Commerce, Citroen creeper track machines are being put into use at the dockyards at Brest, and later will be extended to other French ports, in order to secure more rapid loading and unloading of cargo steamers.

A set of special Citroen-Kegresse machines fitted with Panhard-Levassor sleeve valve engines and capable of 50 miles an hour on the road or over good country is now being prepared for an explanatory expedition into Africa during the coming fall and winter. The expedition will be in charge of an Egyptian Prince who for the last six years has explored the African continent, first with canal envoys and for four years with Citroen machines.

Morris Makes Important Changes in Design; Cuts Prices

British manufacturer announces modifications in both Cowley and Oxford lines, including new frame, radiator with greater cooling area, half-elliptic rear springs and steel dashboard.

By M. W. Bourdon

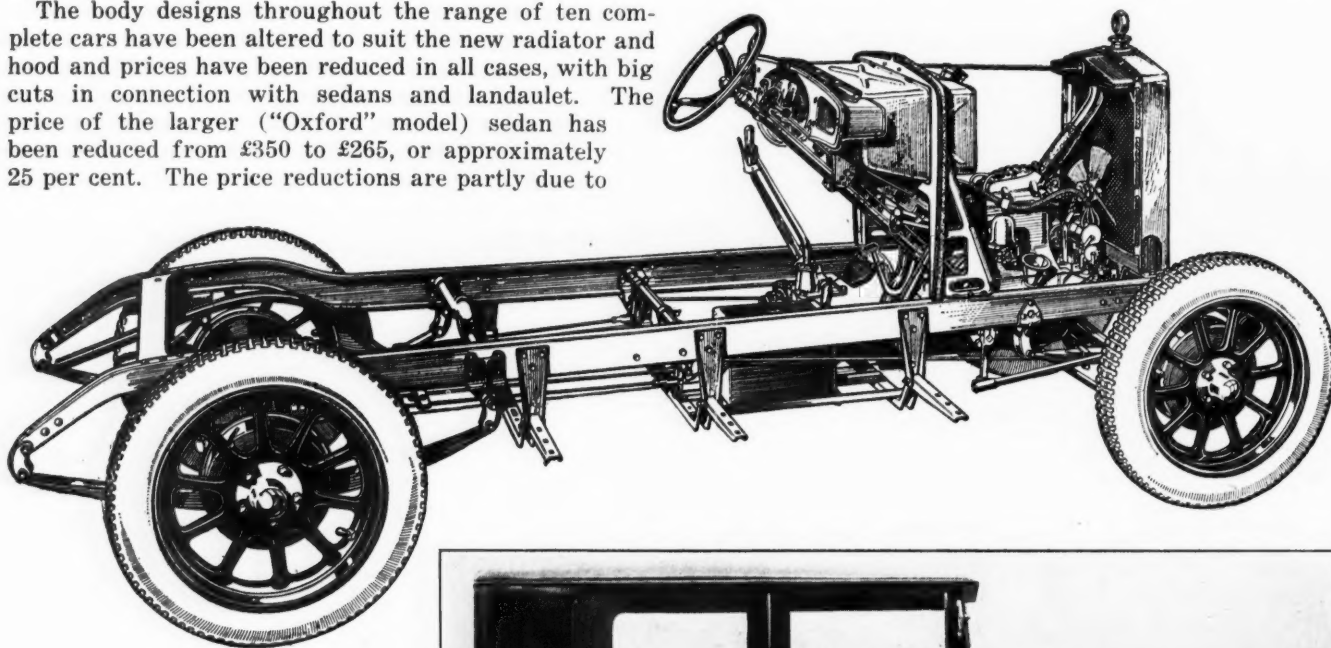
MORRIS, England's largest motor manufacturer, has made more extensive alterations in design for 1927 than in all the years that have elapsed since the War. From 1919 until now the only variations have applied to details of the chassis, bodywork and equipment. But the chassis to be made for next year, in both the 12 hp. and 14 hp. types, has an entirely new frame, half-elliptic rear springs in place of the three-quarter used hitherto, a new radiator with 60 per cent greater cooling area, a flat front and rectangular outline instead of the curved and V fronted type, and a dashboard of pressed steel with rearward extensions carrying the instrument board.

The body designs throughout the range of ten complete cars have been altered to suit the new radiator and hood and prices have been reduced in all cases, with big cuts in connection with sedans and landaulet. The price of the larger ("Oxford" model) sedan has been reduced from £350 to £265, or approximately 25 per cent. The price reductions are partly due to

the fact that the full year's comprehensive insurance policy that was given free with the 1926 models has been dropped.

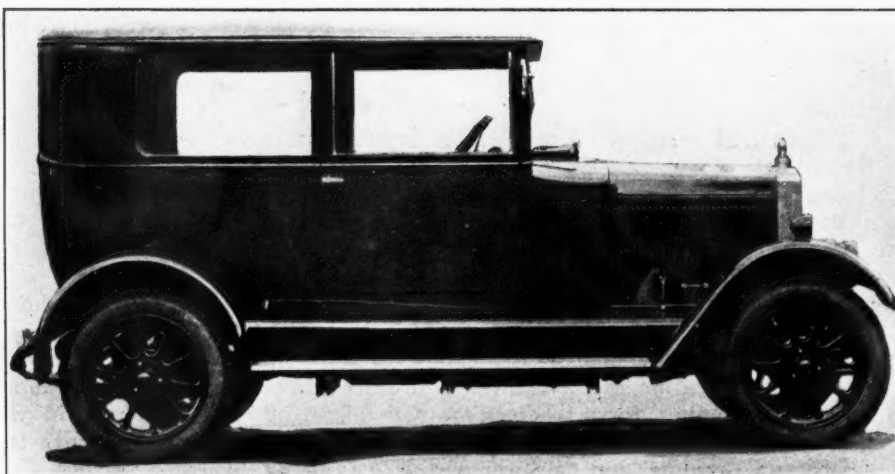
An innovation in connection with the smaller ("Cowley" model) two-seated and four-seated open cars is the offer, at option, of a "simplified" rendering at lower prices; in these cases the brakes apply through the rear wheels only, one color finish only (gray) is available, the accessory equipment is reduced, and combined head and side (double filament) lamps are provided instead of four separate lamps for the front.

On both the "Cowley" (12 hp.) and "Oxford" (14 hp.)



Above—The Morris chassis as modified at numerous points for 1927. The most important alterations include the new frame and rear springs, and the new radiator and all-steel dashboard

Right—12 hp. Morris sedan. With front brakes and full equipment the price is £195, a reduction of £40 on the 1926 price for the corresponding car



chassis, the powerplant, with its four-cylinder L-head engine, five-plate clutch with cork inserts and three-speed gearset, remains unchanged, apart from minor details, the bore and stroke of the 12 hp. remaining 69 x 102 m.m. and those of the 14 hp. 75 x 102 m.m. Apart from the larger bore of the 14 hp. the design in both cases is identical. The last remark applies correspondingly to the rear axle, springs, steering width of track (48 in.) and brake layout, except for the fitting of 9 in. drums on the 12 hp. and 12 in. on the 14 hp. As regards the distribution of braking effort between front and rear wheels, the proportion of 50-50 has now been adopted in place of 40-60.

Two Main Cross Members

The new frame is tapered in plan from front to rear, the straight side members being considerably farther apart at the back. There is a kick-up in front of and a drop behind the rear axle. Two main cross members are fitted, one under the radiator and the other at the rear end, but the engine mounting assists in bracing the frame in front, while at three points between the dashboard and the front of the rear springs are inverted channels running transversely some 6 in. below the level of the frame with pressed steel brackets depending from the side members. These channels extend at each side to carry the running boards and serve to stiffen the frame.

The new half-elliptic rear springs are 47 in. long by 1 3/4 in. wide on the 14 hp. car and 32 by 1 3/4 in. in front; on the 12 hp. chassis the rear ones are 44 x 1 3/4 in., the front being the same as on the larger chassis. The rear springs in both cases are underslung. Shock absorbers are fitted at front and rear to both models. The wheelbase of the 14 hp. has been reduced from 108 in. to 106 1/2 in. while that of the 12 hp. has been increased from 102 in. to 105 in.

A rigid superstructure that serves several purposes is represented by the new all-steel dashboard. It consists primarily of an arched steel pressing supported by pressed steel triangular brackets bolted in front of the side members of the chassis frame; a rearward box-like extension above the arch partly accommodates the fuel tank, the latter projecting forward into the engine space, where are the filler and dial gage. The extension supports further pressings rearward, a latticed unit carrying a steel instrument board, the latter having an oval panel on the center for the instruments and "cubby holes" or recesses at each side for small parcels, etc. In the case of the 14 hp. chassis the instruments are illuminated by hidden rim lights, though an ordinary dash lamp serves instead on the 12 hp. cars.

Brake Operating System

A more direct system of four-wheel brake operation has been adopted. No compensating device is used between front and rear sets, or between the individual shoes; instead a wing nut for adjustment is provided at the end of the pull rod alongside each brake drum. The Rubury type of front brake is retained. There are two pairs of shoes in each rear drum, one for pedal operation with those at the front and the other for an entirely separate brake equipment actuated by the hand lever.

Provision is made for adjusting the brake of the steering column, and a type of pedal adjustable for leg-reach has been adopted for clutch and brake operation.

Adjustable coupling rods for throttle and magneto control are now fitted, the hand controls of these items

being levers projecting from a circular indicator plate located in front of the steering column under the wheel. A separate and distinct (rotating knob) control is provided for setting the slow-running position of the throttle. The carburetor is a Smith five-jet on the right of the cylinder block, with a cored passage through the latter to the integral induction tract on the left.

Between the 12 hp. Cowley and the 14 hp. Oxford models the differences beyond those already mentioned are that the larger cars have more body space, larger tires, screen wiper, door pockets, dipping head lamps, leather upholstery and a choice of four colors. Other than the two-seaters, the new Cowleys have a single wide (32 in.) door at each side with separate front seats, while the Oxfords have four door bodies. On the Oxford sedans the tires are 29 x 4.95 in. Dunlop balloons, the open cars having similar 28 x 4.95 in. tires. The Cowleys have 27 x 4.40 in. Dunlops on hollow pressed steel wheels as in the case of the larger cars.

Although the Oxford wheelbase has been reduced slightly, the new radiator and other variations have permitted roomier bodies to be provided, while increasing the wheelbase by 3 in. on the Cowley has resulted in the legroom of the bodies being 6 in. greater than hitherto. The bodies have higher sides than the 1926 models and the side screens, of the rigid framed and detachable type, have accommodation, when out of use, in roomy lockers behind the upholstery of the main seat.

Purchase by instalments has been arranged with a British financing company, the period for payment being either twelve or eighteen months or two years. As an example of the charges for time payments it may be mentioned that the four-seated open Cowley with full equipment, cash price £172. 10s., can be had by a deposit of £43. 2s. 1d with monthly payments of £11. 10s. 9d for twelve months, £7. 19s. 7d for eighteen months and £6. 4s. for two years.

Explosion Wave Experiments

EXPERIMENTS to determine the effect of the pressure of a gaseous mixture at the instant of ignition on the creation of an explosive wave (detonation) have been made by P. Dumanois and P. Laffite and are described in an Academy of Science "Note." The mixture experimented with was one of hydrogen and oxygen which, if it is compressed slightly above atmospheric pressure, gives a flame of great photo-activity.

The authors determined the distance passed through by the flame from the instant of ignition until the generation of the explosive wave, in glass tubes of 0.867 in. inside diameter and 39.37 in. length. Ignition was effected by an electric spark. Use was made of the chrono-photographic registering apparatus previously employed by one of the authors. Air tightness of the glass tube was assured by rubber joints, which were not compressed but drawn into a metal tube. This metal tube was provided with a slit 0.4 in. deep extending over the greater part of its length, through which the luminous phenomena within could be photographed. The results of the experiments are summarized in the following:

Initial pressure (atms.)	1	2	3	4	5	6	6.5
Length of flame (cms)	70	60	52	44	35	30	27

It will be seen that for low pressures the length through which the flame travels before the explosive wave is established increases rather rapidly with the pressure.

Wide Ranges of Speed and Feed Feature New Vertical Shaper

Operating convenience also prominent in design of 12-inch Pratt & Whitney machine. Built-in motor or belt drive is optional. Three operating hand wheels all located in front.

THE Pratt & Whitney Company, which for several years past has made vertical shapers in two sizes, has just come out with a new 12-in. size which is to take the place of the 10-in. model and greatly extend its range.

Operating convenience and wide ranges of speed and feed are given as outstanding features of the new machine. The three operating hand wheels are all located in front, and the feed reverse lever and friction clutch lever also are within easy reach of the operator in his normal position.

The machine is designed for either a built-in motor drive or a single pulley belt drive from a line shaft. With either drive the main drive pulley of the machine rotates at a constant speed of 440 r.p.m. When arranged for individual motor drive, a 5 hp. constant speed motor is mounted inside the bed. Therefore, the floor space required is the same whether motor or belt drive is used. Owing to the low position of the motor it does not cause noticeable vibration, and as it is fully enclosed, it is out of the way of sweepers and cannot collect chips and dirt. At the same time the

motor is amply ventilated and accessible for adjustments.

The motor drives the large friction pulley at the side of the machine through a 3-in. belt. Cast iron belt guards are provided to protect the operator. Belt tension is regulated by screw adjustment of the hinged platform on which the motor is mounted. Space is provided on the column for the necessary electrical control equipment.

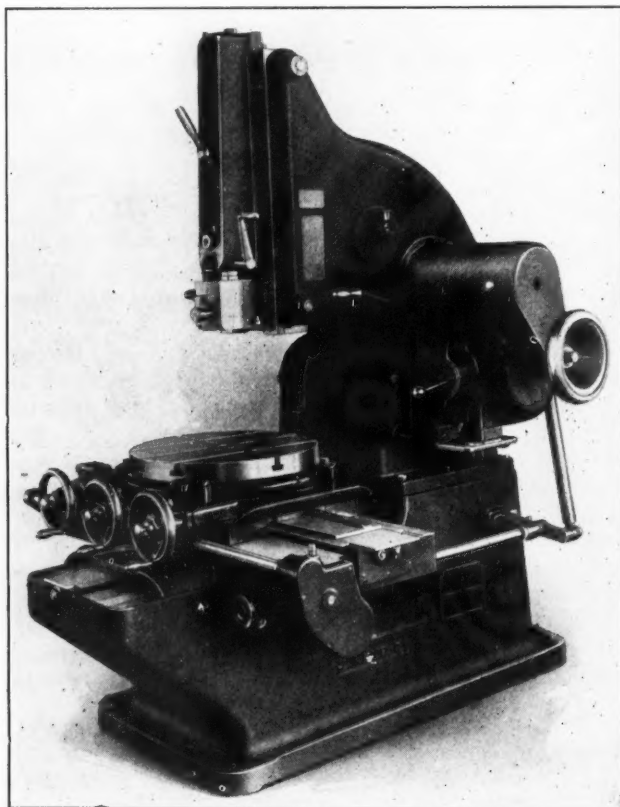
Elimination of a few parts from the motor-driven machine gives the belt-drive model. The same driving pulley is used, which in this case is connected to a line shaft pulley by a belt of the same width as used with the motor driven machine. In this way it is an easy matter to make the change from belt to motor drive at any time.

Power is controlled from the driving pulley by means the friction clutch incorporated in it. This clutch is operated by a convenient lever on each side of the ram, which controls the motion of the machine. The lever has three positions, namely, a working position, a neutral position, and a third position which applies a brake for stopping the ram quickly. This last feature permits the ram to be drifted into position for starting a cut and then held there. This friction clutch lever also actuates a segment and gear which provides a safety interlock to prevent any attempt to change the speed gears when they are in motion.

The 24-in. rotary table provides ample surface for a wide range of work. It is provided with four indexing notches so that quick indexing may be had for surfaces to be machined at right angles to each other. Any other angle may be easily located by using the graduations provided on the table. The rotary power feed allows circular surfaces and holes to be machined cheaply. A suitable handwheel, micrometer dial and binder are provided, and as all handwheels are entirely below the level of the table, there is no interference when placing large work.

The conveniently located operating hand wheels are pointed to by the many factions as the outstanding advantage of the large model. The left hand wheel controls the traverse travel of the table, the right hand wheel controls the longitudinal travel and the middle wheel provides the hand power for the rotary motion. Each handwheel is conveniently marked with an arrow to show which motion is controlled by it.

The hand feed is disconnected and the power feed engaged by pushing in the knob on the handwheel which operates a clutch. Each handwheel is provided with a micrometer dial which turns with both the hand and the power feeds. The range of feeds available is .0021 to .0833 in. for the transverse and longitudinal travels, and .0043 to .1745 in. on the 10 in. radius for the rotary power feed.



New Pratt & Whitney 12-inch shaper

EDITORIAL

Gone—the Prewar Dollar

THAT perennial blue-eyed little Rollo, the Prewar Dollar, still is dragged out of seclusion now and again by some unregenerate economist. Usually it is observed that this economist is associated with some industrial enterprise. Against his will, he usually conveys the impression that his concern craves to be paid in the flocks of dollars that characterize today's business but feels badly because he can not pay his bills with the relatively few dollars of the immediate prewar period.

Deification of the prewar dollar usually smacks of the adjustment of reasoning to self-satisfying foregone conclusions. Which prewar dollar is the most desirable? Is it the dollar of 1830, 1870, 1892, 1907 or 1913? The statistical value of each of them differed but each was the monetary standard of some current business period and was the only available medium of domestic exchange.

The only dollar of current business is today's dollar and the man or corporation that yearns after the dollar of some other day may well look to his fences. He has not kept up with changing times. The two-horse surrey, cable car, four-story office building and the real old-fashioned mint julep can be re-established as readily as the prewar dollar. One wonders how the industry or group which cries for the prewar dollar looks upon the farmers' movement for wartime \$2.20 wheat.

And isn't it strange that nobody can remember any hymns of praise to the Prewar Dollar during the war with its tidal wave of monstrous profits?

Machine Tool Maintenance

WHAT is the sense of a high theoretical production rate and low first cost if the construction of the machine will not permit continuous operation? This query was propounded recently by a machine tool builder who has been in long contact with automotive machine tool buyers.

When it comes down to placing the order, he said, machine tools are bought from a list in which the chief index of value to the purchaser is price. Many companies also list the hourly production rate, the type of operator required—skilled, semi-skilled or unskilled—but nowhere is any mention of maintenance cost encountered.

The cost of keeping machine tools in operation involves something more than the expense of the usual equipment and personnel for that purpose. In most cases such a department can be regarded only as a curative measure. The size and scope of this department is regulated largely by the manufacturer's appreciation of the losses following the breakdown of machines in the production line.

But what about machine tool design which elimi-

nates many of the sources of maintenance charges? Bringing the proposition back to our own industry, what car manufacturer in these days would turn out an engine with an old-fashioned open crankcase? The present type of engine fitted with air cleaner, adequate lubrication system, oil filter, etc., costs more but nobody wants to go back to the old type.

Why not apply the same reasoning to the tools that make modern production possible? A machine tool which incorporates an adequate oiling system, protection for the ways, bearing surfaces, etc., is bound to last longer than the old-time crudities. The engine costs more and is worth more, as it renders the service for which it was designed for so much longer time. So will the machine tool.

The added expense involved in so constructing tools as to reduce the amount of maintenance costs may properly be added to the price of the machine. Fear that buyers might not appreciate the advantages of such constructions and that they would be unwilling to pay the extra price involved has been the chief reason, probably, for lack of more machine designs of the kind mentioned. There are signs, however, that automotive buyers in the future will realize the advantages to be gained along this line better than in the past.

The B. & O. Buses

THE substitution of buses for elaborate New York passenger train terminal facilities was a bold move on the part of the Baltimore & Ohio Railroad and it will be interesting to watch the outcome.

Formerly this railroad operated its trains to and from Manhattan over the Pennsylvania right of way and used the Pennsylvania Station as a terminal. Under the present arrangement, however, the road is operating its trains only as far as Jersey City and is bridging the gap between Jersey City and Manhattan with a fleet of high-class buses which run through a considerable portion of the business section of New York and may be hailed anywhere on the route by persons on their way to B. & O. trains.

Many railroads are now using buses on "feeder" lines, but this is the first attempt to make a "feeder" territory of such an important traffic center as New York. From all reports the public has taken kindly to the innovation.

In advertising the service the railroad speaks of it as an extension of its regular train service and makes the point that boarding one of its buses anywhere along the route is virtually the same as climbing aboard the train.

AUTOMOTIVE **NEWS SECTION** INDUSTRIES

Philadelphia, Pennsylvania

Thursday, October 7, 1926

Production Holds Steady, September Business Lower

PHILADELPHIA, Oct. 6—Rate of production in leading factories in the first week of October has held close to the high record weeks of the year but some downward schedule revisions are noted. Further reductions will undoubtedly be made as the month progresses but the total will compare favorably with the large September output. Output is almost certain to approximate the 400,000 mark which will compare with 450,000 in October last year.

In October, 1925, however, Ford Motor Co. swung into production on its new models after being practically closed for several months. This had the effect of making October the high production month of all 1925. Though there will be a considerable reduction from the 1925 total in the current month it will not reflect the sharp loss that might be assumed. Instead it will reflect the stability of production over the whole year.

The industry is prepared for lower schedules. Releases for material are being held within sharp limits so that there will be no important accumulation of stock. As retail buying diminishes the industry will check its manufacturing except in so far as necessary to keep dealers' stocks to the customary supply. Continuance of high retail movement for some weeks yet is indicated and a good rate of movement for the balance of the year is expected, especially in the farming districts.

Holding of the Paris and London automobile shows is certain to offer an important stimulus to the export trade. Dealer attendance at these shows is expected to be larger than at any time owing to increased opportunities for business offered by improved economic conditions. American manufacturers aim to acquire many additional dealers and exhibits are on a more extensive scale than formerly.

(Continued on page 631)

Barker to Aid Factories in Foreign Sales Mark

WASHINGTON, Oct. 6.—Fowler W. Barker, for the past two years Chief of the Research Section of the Automotive Division, U. S. Department of Commerce, has been transferred to the Detroit office of the Department to specialize in promotion work for foreign automotive sales.

Mr. Barker is being succeeded in the Department by C. E. Haynes, former sales representative of the Rickenbacker Motor Co. Mr. Haynes recently returned from several years residence in Europe during which time he studied automotive market conditions.

Tire Exports Show Decrease in August

WASHINGTON, Oct. 7.—Rubber exports from the United States during August showed a noticeable decrease compared with the July figure, according to statistics gathered by the Rubber Division, Department of Commerce. The total value of all rubber products exported was \$4,296,969, as compared with \$5,056,695 in July.

Exports of tires, tubes and tire repair materials accounted for \$2,104,927 of the August total, a decline from \$2,744,248 in July. Exports of every item in the tire group declined, both in quality and value, as well as showing a declining scale in unit values.

Shipments of automobile casings during the month numbered 100,995, next to the lowest figure of the year, and were valued at \$1,599,112. The unit value of exported casings was \$15.83, the lowest since January. Inner tube unit value was \$2.55, the lowest of the year, while solid tires declined to an average value of \$34.39, the lowest since March.

The United Kingdom was the leading purchaser in the tire group during the month, taking 16,483 casings, valued at \$276,614 and \$23,042 of the total of \$113,655 tire repair materials. It also purchased the largest quantity of solid tires and inner tubes. Other important markets were Cuba, Argentina, Mexico and Canada, with the shipments to Cuba and Argentina below normal.

Germany Favors French Cars

WASHINGTON, Oct. 7.—The new German-French commercial treaty provides that France may export into Germany annually during the life of the treaty 3600 automobiles, a cable to the Department of Commerce, Automotive Division, states. This concession was made by Germany as it regards France as a less serious competitor to domestic industry than America, and the reduced German purchasing power is regarded as sufficient check to excessive importations.

45 MAKES OF CARS DRAW SHOW SPACE

NEW YORK, Oct. 7.—Space allotments at the 1927 New York and Chicago shows were drawn at the National Automobile Chamber of Commerce offices today. On the basis of the drawings there will be 45 makes of passenger cars shown, 19 makes of trucks and four taxicabs.

Eliminating duplications of cars made or controlled by the same company, there will be 30 makers of passenger cars exhibiting. All of the taxicabs shown will be by companies also showing passenger cars. Six of the trucks exhibited are made by companies also exhibiting passenger cars.

The total space of all classes of vehicles will be in the hands of 43 manufacturing companies.

There were 50 makes of passenger cars exhibited at the 1926 national shows. Additional spaces may be taken later by companies not represented in the N.A.C.C. membership, bringing the list of exhibitors higher.

Willys-Overland Sales 16,000 in September

NEW YORK, Oct. 5.—Sales of Overland and Knight cars in September were in excess of 16,000, according to a statement by John N. Willys, all of which he declares is going directly to retail buyers. Total production in the third quarter will approximate 54,000 and retail sales will exceed this by about 2000.

Shipments of Whippet cars since introduction aggregate 40,724, a daily average of about 575 daily since July 1. With large numbers of Whippet cars now available for export shipment, the company will set up a new record in October.

Export shipments are now running at the rate of 35,000 to 40,000 annually.

Wilcox Products Formed

DETROIT, Oct. 6.—A new corporation to be known as the Wilcox Products Co. and capitalized at \$1,000,000, has been formed at Saginaw. It has purchased the Wilcox Motor Parts & Mfg. Co., manufacturers of piston pins, tappets, valves and rings for standard equipment and has also acquired the Intra Steel Products Co., of Detroit, manufacturers of valve tappets. Headquarters will be maintained at Saginaw and the Saginaw factory employing 600 men will be enlarged.

Auburn President Acquires Duesenberg

E. L. Cord and Associates Plan Sales Development—Duesen- berg Remains

INDIANAPOLIS, Oct. 6.—A new organization to be known as Duesenberg, Inc., and headed by E. L. Cord, president of the Auburn Automobile Co., has just completed negotiations whereby it is to take over control and operation of the Duesenberg Motors Co., according to an announcement made today by Mr. Cord.

It is the intention of the new company to continue the manufacture of Duesenberg automobiles with a merchandising program of considerable scope that will appeal to the high price custom field of buyers. In addition to making use of the present Duesenberg factory facilities here, plans are being made to construct a new plant and experimental laboratories on the site that the old Duesenberg plant has occupied.

Mr. Cord is to serve as president of the new Duesenberg organization, while Fred S. Duesenberg, president of the old company, will serve as vice-president in charge of engineering and the experimental division. Mr. Duesenberg, it is said, will retain a substantial interest in Duesenberg, Inc.

Mr. Cord explained that Duesenberg, Inc., is a company entirely separate and distinct from the Auburn Co. and that no intercompany relationship will be maintained between them. The Duesenberg line will not be merchandised along with Auburn through Auburn dealers. It will have its own merchandising organization.

The deal was negotiated through Manning & Co., of Chicago. The new company will have a capitalization of more than \$1,000,000, according to Mr. Cord. It will issue 150,000 shares of "B" stock and 75,000 shares of "A" stock of no par value.

"Purchase of the Duesenberg factory is the culmination of my plans to offer an automobile of undisputed rank," said Mr. Cord. "Duesenberg cars will be strictly custom built, the owners selecting their own colors. We will give the buyer 125 mile speed an hour if desired. Naturally the production of this type of automobile will be limited and we are now taking orders for delivery within six months."

Says Buses Must Exploit Luxury and Speed Taste

CLEVELAND, Oct. 5.—Speaking at the October meeting of the Cleveland Section of the Society of Automotive Engineers, Walter Jackson, transportation consultant, said motor coaches would reach the peak of their usefulness as exploiters of the public desire for speedy and luxurious travel. This will overshadow their usefulness as

feeders or understudies of railways, he said.

C. M. Ballou, street railway commissioner of Cleveland, said the public soon tires of novelties. It expects of its buses the comforts and conveniences it gets in its private passenger cars.

The meeting was held during the week of the American Electric Railway Association convention. All of the entertainment features of the convention were cancelled because of the death of J. V. Stanley, president of the Cleveland Railway Co.

Manufacturer Views Sought on Air Laws

WASHINGTON, Oct. 6.—Manufacturers of the automotive and aircraft industries are meeting here this week at the invitation of William P. McCracken, Jr., Assistant Secretary of Commerce for Aeronautics, for the purpose of formulating rules and regulations for commercial aviation. The conferences are being held in four groups, the first of these being the aircraft manufacturers which met on Monday and the airplane engine manufacturers meeting tomorrow. On Oct. 18, representatives of insurance companies will meet with the Department, followed by trade publication editors on Oct. 22.

The air regulations which have been tentatively drafted by the newly formed Aeronautic Branch of the Department of Commerce are drawn up under the Air Commerce Act of 1926.

The representatives of commercial aviation and designers of airplanes who met with the Department were: H. E. Payne, Atlantic Aircraft Corp.; C. S. Jones, Curtiss Aeroplane Motor Co., Inc.; S. S. Bradley, Aeronautics Chamber of Commerce; R. N. Noordeck, Atlantic Aircraft Corp., Fokker Aircraft Corp., and Peterboro Airport Inc.; G. S. Ireland, Ireland Aircraft, Inc.; Wm. B. Stout, Ford Motor Co.; H. G. McCarroll, Detroit Air Board; C. Milburn, Glen L. Martin Co. and T. H. Huff, Huff, Deland Airplane Co.

British Tire Prices Cut

NEW YORK, Oct. 5.—Three leading British tire companies have announced reductions of from 15 to 20 per cent in the price of their product, according to dispatches received here. Accompanying the tire reduction is the announcement of a standard motorcycle, selling for \$125, which is being featured at the motorcycle show at Olympia.

Speedways Seek Rickard

NEW YORK, Oct. 4.—Tex Rickard has been asked to act as general manager of United Motor Speedways of America, Inc., which will combine the management of the leading motor speedways in the east when details of organization are completed, according to report here. Mr. Rickard has taken the matter under advisement.

Business in Brief

Written exclusively for AUTOMOTIVE INDUSTRIES by the Guaranty Trust Co., second largest bank in America.

NEW YORK, Oct. 7.—A conspicuous feature of the business situation last week was the marked weakness in the price of raw cotton following the publication of an unexpectedly optimistic crop forecast by the Department of Agriculture. Notwithstanding this decline, the general level of commodity prices advanced slightly. Stock prices continued to move irregularly, with a strong rally in the latter part of the week offsetting the declines of the first three days. The weather continued unfavorable, with excessive moisture in some sections and frosts in others.

CAR LOADINGS

A new high record was reached by railway freight car loadings in the week ended Sept. 18, with a total of 1,187,011 cars, exceeding by 35,665 cars the previous record established in the week ended Sept. 4. Car loadings have exceeded the million mark in seventeen weeks so far this year.

Bank Debits

Bank debits to individual accounts reported to the Federal Reserve Board for the week ended Sept. 29 were 9.9 per cent below the total for the preceding week and 5.1 per cent below that for the corresponding period last year.

FISHER'S INDEX

Fisher's index of wholesale commodity prices stood at 148.3 last week as against 147.8 in the preceding week and 147 four weeks earlier. Bradstreet's wholesale price index advanced about $\frac{3}{4}$ of 1 per cent during September.

FEDERAL RESERVE STATEMENT

Bills and securities held by the Federal Reserve Banks increased \$57,100,000 during the week ended Sept. 29, with gains of \$55,000,000 in discounts and \$5,200,000 in open market purchases and a decline of \$3,100,000 in holdings of Government securities. Note circulation increased \$400,000, while deposits declined \$1,600,000 and reserves \$20,400,000. The reserve ratio declined from 73.1 to 72.6 per cent.

Loans of reporting member banks increased \$136,000,000 during the same period, with gains of \$63,000,000 in loans secured by stocks and bonds, \$7,000,000 in loans secured by Government obligations and \$66,000,000 in "all other" loans. Investments increased \$13,000,000, borrowings from the Federal Reserve Banks \$39,000,000 and net demand deposits \$104,000,000. Loans to brokers and dealers, secured by stocks and bonds, made by reporting member banks in New York City increased \$51,000,000.

Money rates in general were higher last week, call loans advancing to 6 per cent, time loans to 5-5 $\frac{1}{4}$ per cent and commercial paper to 4 $\frac{1}{2}$ -5 per cent.

H. G. Scott Elected Hercules President

Succeeds J. B. Graham in Reorganization Program—Will Extend Truck Body Work

EVANSVILLE, IND., Oct. 2—Reorganization of the Hercules corporation, manufacturer of truck bodies and Servel refrigerators, which will result in a \$500,000 plant improvement program has been announced by Col. William H. McCurdy, chairman of the board of directors. The name of the company has been changed to Servel Mfg. Co. and new officers have been elected.

Officers elected for the \$24,000,000 enterprise industry are Col. McCurdy, chairman of the executive board; H. G. Scott, New York, president; Herman Ely and J. J. Brown, both of New York, vice-presidents; H. T. Birdsall, secretary-treasurer; Fred Nehrbas, vice-president in charge of manufacturing; and George Robertson, plant manager.

Mr. Scott as president succeeds Joseph B. Graham who it is said wishes to devote more attention to other interests. Mr. Graham and his brother, Ray C. Graham, former owners of Graham Brothers Truck Co. and former Dodge executives, continue on the board of directors.

The reorganization will effect a greatly increased production in truck body building according to Mr. Nehrbas. The present force of 500 men in this division of the industry will gradually be increased to 1000 thereby raising production from 125 to 200 or more bodies a day.

Trap Doors in Bottoms of Ford-Canada Trucks

DETROIT, Oct. 2—According to officials of the Ford Motor Company of Canada, Ltd., four standard commercial bodies which were introduced early in September have met with much favor, especially in the west where demand for a standardized grain body has existed for some time. All the models are equipped with a closed steel cab and are upholstered to provide driving comforts similar to passenger cars. The cabs will seat three people.

The express truck is a duplicate of the express van with the exception that it has twice the capacity. Grain sides can be fitted in a few minutes. Cut in the bottom is a trap door operated by a lever so that grain can be poured into the elevator. While this truck was designed primarily for the grain raising districts of the Dominion, it is also finding favor in the East, where it has been found equally as well adapted for the carrying of coal.

The stake truck, which finds much favor among contractors and truckers has now been standardized by the Ford organization.

FILLING STATIONS IN "SATURATION" STUDY

BALTIMORE, Oct. 5—With a total of 689 gasoline filling stations to its credit, Baltimore is probably the most gasoline "served" city in the country according to its size. A census just made by the license bureau of the city to determine the need of additional stations shows that there is a station for each 769 cars in the city.

So many applications for filling station permits have been made in recent months and so much opposition to granting them has been voiced that Mayor Howard W. Jackson decided to learn if there is a real need for more stations. No decision has as yet been announced as to whether or not the ratio of stations to motorists is excessive.

Liberty Motor Vehicle Seeks Toledo Factory

CLEVELAND, Oct. 4.—The Liberty Motor Vehicle Co., incorporated to manufacture a gas-electric motorbus and now completing its first car in a section of the plant of the Automatic Machine Co., here, is seeking a plant in Toledo where executives of the company have decided to locate. It is understood that the company has the backing of Cleveland, New York and Toledo capitalists.

Frank C. Schmidt, president of the Liberty Highway Co., a motor freight transportation company operating between Detroit, Toledo and Cleveland, is head of the new company. Elmer G. Greise, formerly with the White Co., is vice-president, and Russell Kinkaid is secretary and treasurer.

Bus Lines Consolidate

LEXINGTON, Ky., Oct. 2.—Plans were completed here this week for the consolidation of the Reo Bus Line Co., the Red Star Transportation Co. of this city; the White Star Bus Lines of Winchester, and the Safety Motor Carriers of Louisville into a \$1,000,000 corporation. General offices will be located in Lexington with an eastern terminal at Ashland, Ky., a western terminal at Louisville, and branch offices in all the terminal cities and principal towns touched by the system. The lines cover 1000 miles of territory and will be extended as required.

Glidden Perfects Remover

CLEVELAND, Oct. 4.—The Glidden Co. has perfected a nitro-cellulose paint and lacquer remover which its makers claim will revolutionize the refinishing of automobiles. Some units of the plant are now working 24-hour shifts and are behind orders. The new product, it is claimed, eliminates the necessity of removing the old finish.

Gasoline Substitutes Meet French Test

Twenty Vehicles Cover 1500
Miles in Demonstrating
Other Fuel Possibilities

PARIS, Sept. 22 (by mail)—With gasoline costing 35 cents a gallon and rising and only very small sources of supply being in French hands, there is every inducement here to encourage the use of nationally produced substitute fuels. A 1500-mile demonstration, just organized by the Automobile Club of France, has proved that the task is not hopeless for 20 automobiles of all types, varying from taxicabs to 3-ton trucks, have spent 13 days on the road without consuming a drop of imported gasoline.

The event was not a competition, but a demonstration intended to prove that existing automobiles can be operated on nationally produced substitute fuels. Producer gas plants were in a majority, those comprising two Berliet light trucks with the Berliet-Imbert plant consuming wood blocks; two Renault 3-ton trucks with the Renault charcoal gas plant; one Panhard 3½-ton truck with the Panhard gas plant consuming wood; a similar Panhard using compressed charcoal designated Carbonite; a 2-ton De Dion Bouton truck with the Rex generator and compressed charcoal as fuel and a Peugeot on charcoal gas.

A Ford passenger car ran the full distance on acetylene; a couple of Citroens operated on compressed acetylene gas; two small Peugeot cars used a liquid substitute fuel just produced under the title Ketol; a military truck and a military staff car ran on a mixture of benzole and alcohol. As an indication of the possibilities of wood or charcoal fuels, a normal 2-ton De Dion Bouton truck, with special pistons to increase the compression ratio to 6, used compressed charcoal and maintained an average of 29 miles an hour, showed a maximum speed of 40 miles an hour and burned on an average 55 pounds of compressed charcoal per 100 kilometres (62 miles). The truck weighed 10,360 lb. in running order.

While liquid substitute fuels offer the greatest attraction for passenger car use the greatest advance has been made with wood and charcoal gas producer plants. The Berliet company, which has adopted the Imbert wood consuming plant and is using it for all types of commercial vehicles from 1½-ton light truck upwards, is unable at present to keep pace with demand.

AC Makes Fuel Strainer

FLINT, Oct. 2.—The AC Spark Plug Co. announces that it is manufacturing a gasoline strainer. Foreign matter is retained by a brass screen of fine mesh while water settles to the bottom of the glass bowl. The cleaner has been adopted as standard equipment by several car manufacturers.

Third Quarter Sets Tire Output Record

Earnings Reports Expected to
be Lower Than Last Year
—Activity Continues

AKRON, Oct. 4—Automobile tire manufacturers enter the last quarter of the year with sales and production of tires and tubes holding close to the record breaking levels maintained in July, August and September. Operations in September showed a slight seasonal recession, but are still higher than last year.

Volume of tire sales during the quarter ended Sept. 30 exceeded any previous quarter in the history of the industry, a survey of leading factories reveals. Goodyear Tire & Rubber Co., now the world's largest rubber company, turned out nearly 1,000,000 casings at its Akron plant. Subsidiary factories at Los Angeles and Toronto also showed large gains. Firestone is expected to report larger sales than last year for the fiscal year ending this month.

While none of the rubber companies will show as large profits as last year, when conditions were unusually favorable to them, the well managed concerns now are enjoying satisfactory earnings. Firestone, Goodrich, Miller and General probably will earn their regular common dividends by comfortable margins.

Production in the Akron district is expected to continue at a comparatively high rate during the remainder of the year. Manufacturers are preparing to announce their 1927 policy for spring dating, which should stimulate buying this winter by the retail dealers.

U. S. Tire Bill \$1,143,612

WASHINGTON, Oct. 6—Tire bills that run above \$1,000,000 annually are relatively scarce, but the Federal government boasts of one. During the fiscal year of 1926, ending July 1, the government paid \$1,143,612 to keep its automotive equipment in tires. This included passenger cars, trucks, motorcycles and airplanes used by the different bureaus and departments.

The postal service, perhaps, has incurred most of the expense through the use of its 5600 trucks. All tires purchased by the Federal government must pass a rigid inspection, made by the U. S. Bureau of Standards. Inspection is made by selecting one tire out of every 200 for examination.

Fabric Makers to Meet

WATERLOO, IOWA, Oct. 4—The Associated Manufacturers of Fabric Auto Equipment, Inc., will hold its annual meeting and election of officers at the La Salle Hotel in Chicago on Nov. 6, according to an announcement made by Clyde Hinson, president of the association and head of the Hinson Mfg. Co. of this city.

TRUCK RENTAL PLAN STUDIED BY YELLOW

NEW YORK, Sept. 30—Reports that the Yellow Truck and Coach Mfg. Co. is offering a truck rental service were explained by officials of General Motors Corp. today as "an individual dealer's experiment which Yellow Truck is watching with interest, but with which it is not connected in any way."

The plan, as worked out by the individual dealer, consists of offering trucks for rental at \$30 a week, plus 13 cents a mile, the total charge to include gas, oil, insurance and the salary of the chauffeur.

First Grade Tires Regain Sales Place

AKRON, Oct. 4—A larger demand for first grade tires has developed within the past few months. Since July especially, when a substantial price cut was made, sales of high quality tires have shown a big increase, according to Miller Rubber Co. officials here, greatly subordinating the activity in lower price lines.

Before the higher tire prices of a year ago, when crude rubber forced manufacturers to increase prices, there was little demand for a secondary line of tires. Demand for the cheaper casings was brought on by the higher tire prices.

Manufacturers who previously had not pushed a secondary line began to place more emphasis on it, rounding it out to meet the needs of the owners of all but the more expensive type of cars, and went out into the market to sell on a price basis.

Stearns Sales Increase

CLEVELAND, Oct. 4—With the introduction of new models, F. B. Stearns Co. officials report the business outlook for the coming year to be the brightest in the history of the company. Increased orders are reported from every section of the retail field and production is being increased steadily to meet the improved retail demand. Factory operation during the remaining months of the year will hold close to capacity on the basis of orders now received.

Wilson Body Active

MOLINE, Oct. 2—Orders on the books of the E. H. Wilson Mfg. Co. total \$3,960,000, sufficient to keep the plant at capacity production until next July, E. H. Wilson, president, announced this week upon a return from an eastern trip. Conditions in the automobile industry are good, he said, and especially bright as they affect body manufacturing companies.

High Schedules Rule Factory Production

October Output to Exceed
September in Some Plants
—Operations Steady

DETROIT, Oct. 2—Production in the automobile industry, for October, taken as a whole, will probably start tapering off slightly, following a seasonal tendency.

The various General Motors car divisions continue at a high rate. Demand has been especially strong for Buick, Chevrolet, Pontiac and Oakland and this in turn has reflected in the corporation's subsidiary parts manufacturers.

The Paige-Detroit Motor Car Co. which recently introduced new Jewett and Paige models is just swinging into production on its new cars and expects an excellent business in October.

Chrysler is another of the large producers which is enjoying large business. With an unusual demand for the new Chrysler 50, along with a large call for the other three Chrysler lines, the corporation is confident that October will be another banner month.

Hupp Motor Car Corp. finds itself with increased orders for both the eight and six models and expects to manufacture more cars in October than in September.

The Hudson Motor Car Co., which recently opened its new \$10,000,000 body plant, following the introduction of new Hudson and Essex models, plans to manufacture more cars in October than in September.

Motor Truck Industries Favors Group Advertising

PHILADELPHIA, Oct. 1.—Motor Truck Industries, Inc., held its regular monthly meeting here today as the guest of S. K. F. Industries. The possibility of beginning a cooperative advertising campaign, designed to establish the name and purposes of the organization in the minds of truck users and buyers was discussed, general sentiment toward some such activity being favorable. Further details of the standardization activities of the organization were analyzed. The members at the meeting visited in the morning the plant of the Hess-Bright Bearing Co., a subsidiary of S. K. F. Industries.

Find New Barytes Deposit

CLEVELAND, Oct. 4—California engineers of the Glidden Co. of Cleveland report having made the discovery of a large deposit of barytes ore in California. Engineers estimate that the deposit contains 1,000,000 tons of barytes ore assaying 7 per cent barium sulphate and the deposit now controlled by the Glidden Co. of California is said to be the largest deposit in the country. Barytes deposits in Tennessee and Georgia are nearly exhausted.

Little Buying Seen at New Steel Prices

NEW YORK, Oct. 7.—The movement of automotive steels into consumption proceeds at a brisk pace, but, in spite of the glowing picture painted of the steel market as a whole, there has so far been no representative tonnage buying at the higher prices recently promulgated by sheet rollers. It is quite apparent that consumers were given the fullest opportunity to cover their requirements over the remainder of the year at the old prices, and that they did so to a considerably greater extent than was thought when the new base gages and prices were proclaimed.

The sheet market, therefore, is a dual affair. One part of it is in the past, and speaking of that part, it may be characterized as strong, inasmuch as purchasers are taking every ton of steel they contracted for, and taking it as promptly as rollers can ship it. The other part of the market, that to which the higher prices apply, lies really in the future, and, as there has been but little business to test it, it can not be characterized at all.

Because of the advances that steel mills announced as impending, the last buying movement was more concerted than has been the case at any time during the year now drawing to a close. If producers maintain the new prices, when new business begins to overhang the market, buying is likely to be more irregular than it was preceding the price advance.

Pig Iron—As intimated in last week's report, the market has turned stiffer, and there is nothing in the way of foundry iron offerings at below \$18, valley, base.

Aluminum—The market is of a routine character. The domestic producer is believed to be operating at somewhat in excess of the usual rate for this time of the year. Importers continue to book 1927 business at un-

altered price levels. Details were published recently of a new process for making aluminum oxide, electrothermally, promising important economies.

Tin—In spite of appallingly high prices, some consumers were forced to buy in order to cover their immediate requirements.

Lead—With the market a shade more favorable to consumers, some storage battery interests are buying more liberally.

Hupp Adds "8" Victoria and Roadster on "6"

DETROIT, Oct. 5.—Two additional body styles have been added by the Hupp Motor Car Corp., a close-coupled five-passenger Victoria on the "eight" chassis listing at \$2345 and a rumble seat roadster on the "six" chassis priced at \$1385. With the brougham model announced last week the "eight" line now comprises 10 current body styles while the "six" has four models.

The Victoria model of the two-door type has an adjusting device for altering the height of both the front tilting seats. Rear seats are 52 in. wide and provided with deep arm rests. Upholstery is grey button tufted mohair with the exterior finished in light green relieved with black molding of the double belt effect.

By means of a spring catch the rumble seat on the roadster model may be opened from behind the parcel space in the front compartment. Windshield frame and stanchions are nickel-plated while the color scheme is in two shades of brown.

Adair Condition Favorable

NEW YORK, Oct. 7.—The condition of Neal G. Adair, manager of the show and educational departments of the Motor & Accessory Manufacturers Association, who underwent an operation for appendicitis this week, was reported favorable.

A.E.A. Waives Ban on N.S.P.A. Exhibit

CHICAGO, Oct. 1.—Ten jobbers and 14 manufacturers were elected to membership in the Automotive Equipment Association at the directors' meeting here this week.

The board of directors also voted to waive jurisdiction over the show of the National Standard Parts' Association, thereby withdrawing all objections to members of the A. E. A. exhibiting at the Parts Show. A number of A. E. A. members, who were also members of the N. S. P. A., and who exhibited at the Parts Show last year, had been threatened with discipline by the A. E. A. because the Parts Show was not sanctioned by the association. The action of the directors, however, leaves A. E. A. members, who are also members of the N. S. P. A., free to exhibit at both the A. E. A. and the N. S. P. A. shows.

The allotment of space for the A. E. A. show made at the Congress Hotel on Wednesday, reveals that the show this year is to be larger than ever. For the first time in the history of the A. E. A. practically all of the balcony space will be required to take care of the exhibitors. Space was allotted to 230.

Standard Six Victoria Now in Studebaker Line

SOUTH BEND, Oct. 7.—Addition to the Studebaker line of a standard six custom victoria for four passengers and priced at \$1335 is announced by the Studebaker Corp. of America. The exterior is finished in Kinick green and Tuchi gray lacquer with an ebony belt having apple green striping. Chase mohair upholstery with broadlace trim and Butler finished hardware are used in the interior. Besides the luggage compartment in the rear deck there is a concealed locker behind the driver's seat for smaller parcels.

Developments of the Week in Leading Motor Stocks

NEW YORK, Oct. 7.—The stock market received a sharp set-back during the past week, and notwithstanding optimistic sentiment in brokerage circles, prices declined rapidly and for a time called a halt to operation for the advance. Early in the week money loomed as the most important factor in speculative considerations with an advance in the call rate to 6 per cent, the highest in some months, and reports that the Federal Reserve rediscount rates in Boston and Philadelphia were to be advanced. When a decline in money to former levels took place, and the threatened increase in the rediscount rates failed to materialize, the decline in cotton prices and predictions of drastic curtailment in southern purchasing power became the general topic of speculative conjecture.

Motors were weak and considerable liquidation aided professional short sellers in bringing about lower prices in numerous issues. Reports of curtailment in motor manufacturing centers with announcements first that Ford was planning to adopt a five-day schedule in his plants and then that Dodge had reduced operations to a four-day weekly basis caused some selling of the motors.

Hudson, Dodge, Chrysler, Willys-Overland and Studebaker gave ground readily and in several of these issues where pools are still known to be at work there was little attempt to support the issues except at recessions.

Mack trucks was one of the principal features of weakness in the motor group and the heavy selling of this issue continued, bringing about new low

prices on the movement. Much of the liquidation was based on the expectation of a poor third quarter's earnings statement, and the interpretation which some farseeing observers placed on the company's restrictions on installment sales. It was argued that this step was taken because the capable Mack management foresaw a change in general business conditions and did not want to be caught in any period of declining business with a large volume of customers' notes unsettled.

Yellow Truck and Coach held firmly, but bearishness in some quarters due to the company's poor earning prospects continued.

The tire stocks were under pressure with the rest of the list as were also the motor accessory issues. U. S. Rubber showed weakness.—E. S.

September Retail Sales Show Recession

(Continued from page 626)

Reports from leading trade centers indicate in many instances a slowing down in retail movement in September. In most cases this is ascribed to poor weather. In practically every case good business is expected in October, the feeling being that it was merely held over. These reports follow:

NEW YORK

Total new car sales for the month of September in the metropolitan area are estimated at 9450, on the basis of the first three weeks of the month. This compares with 7485 last year. Sales are reported as holding up well during the closing days of the month, especially in the medium priced field. Used car stocks are variously reported at normal or below normal, although the condition generally is not so satisfactory as it was a month ago. In the truck and commercial vehicle field there is a feeling that the tendency toward more stringent policies on time sales may show a slight curtailment of sales when final figures for the month are available, but that actual profits may amount to as much or more. The impression prevails also, that the market for heavier vehicles may have been slightly oversold during the month just closed and that sales of light commercial vehicles will prove to have made the better relative showing.

CLEVELAND

Following a dull August automobile dealers became encouraged with a much stronger demand for new cars with the opening of September. However, this was but of two weeks' duration and, for some unaccountable reason there was again a decided falling off in new car sales during the last half of the month. Truck dealers and distributors had a good September and ran ahead of last year on sales totals. This applies to both light and heavy duty trucks the demand seeming to be well balanced. Used cars demand is even with last year and satisfactory. Automotive jobbers are experiencing a fair demand for accessories, parts and tools with business slightly ahead of the same month one year ago.

PHILADELPHIA

New car sales in the Philadelphia district in September made a considerable gain over the 2325 total for September of last year but fell below August business this year. Final figures are not yet available but there is sufficient data at hand to show that sales of medium-priced cars cut deeply into the low-priced field. No company has any great stock of new cars. Used car stocks in some quarters are held to be half the number on hand at this time last year.

BOSTON

Motor car sales in Boston and vicinity during September were satisfactory. The glamor of new car announcements; uncertainty of what was in the air; possible price reductions were no longer disturbing factors. There seemed to be an impetus given also to the used cars. Commercial vehicles seemed to be going along in a rather even manner.

CHARLOTTE

Vigorous competition in all lines characterized the automobile trade in the Carolinas early in October and a large volume

of business was being done despite conflicting economic currents and the depressing influence of a sharply slumping cotton market. The farmers were entering the market in increasing numbers as the month began, resulting in a brisk demand for new cars, particularly for those selling under \$1600, and some dealers and distributors reported inability to make immediate deliveries. The used car market was irregular and prices were at the lowest level for the period in recent years. In South Carolina, however, the collapse of the cotton market was expected to bring about soon a decided decrease in the volume of automotive trade. North Carolina conditions were more stable.

CHICAGO

Although some dealers and distributors in this field enjoyed better business during September than in August the sales curve for the trade on the whole took another monthly downward pitch. There was a drop of 25 per cent in Cook county under the August total. The central part of the State comes in with a drop of 23 per cent and the southern part of the State with a drop of 22 per cent. The decline in September for the State at large compared with August was 23 per cent. Chevrolet and Ford each dropped about 20 per cent and practically all lines shared in the slump. With some good Indian summer weather in October it is hoped sales will pick up considerably. Some members of the truck trade report more satisfactory business for September.

MINNEAPOLIS

Weather conditions are considered responsible for a sudden drop in retail sales in the Minneapolis district in the last week. For years the district has had dry cycles and this fall the wet period has set in, with one of the disadvantages that it has cut down interest in automobiles. Distributors and wholesale firms at that are reporting better business than last year at this time, and the outlook is excellent. Cheap used cars continue to lead in that reconditioned market. More interest is being developed in the truck field. Farmers, oil men and department stores lead in the purchases, and sales range from three-quarter ton to 2½-ton vehicles.

MILWAUKEE

Dealers continued to complain that factories were not able to deliver as many cars as they sold. Unfilled orders at the beginning of October were smaller than a month before, but the fact that the trade should be confronted by a shortage of cars at this season of the year is one of the surprising features of business. October sales are expected to show an increase of at least 20 per cent over the same month in 1925, when new car sales numbered 5369. The increase in August as well as September ranged a little above 20 per cent. Prospects for the remainder of the year are considered favorable to active trade.

DENVER

After the best August in history the automobile business in Denver and Colorado slipped back into a normal September. It is usual to have a slowing up of business during the period of transition from summer to fall, with a noticeable increase again in October, and this increase is beginning to make itself felt particularly on

closed models. The slowing up was far more apparent in Denver than in the country, and was scarcely felt in the Horn region, of Boulder, Longmont, Fort Collins, Greeley and Fort Morgan, where a phenomenal beet crop is on the way to market. Collections are distinctly improved. Used cars are moving freely. Truck business in the State showed a 35 per cent increase in August over July, and is back close to the July level for September. The increase was almost entirely due to the sale of light trucks to the beet farmers.

BIRMINGHAM

Dealers in and around Birmingham report continued good business through September. Not only do the automobile dealers report good business but those who handle accessories, parts and supplies are equally optimistic.

While the market on the more expensive cars is said by dealers to be active, cars also are experiencing a better demand.

The used car market is fairly active. Dealers state that they are not so much a problem as last year.

The market on trucks has been good.

DALLAS

Practically all automotive lines in Texas and parts of adjoining states felt effects of \$500,000,000 cotton crop getting into the market as the ninth month of the year passed out. There was an improvement in most lines with the outlook for trade the remainder of the year good.

New car sales were 5 per cent above those of August and 10 per cent better than a year ago.

Used car sales were about same as preceding month. Dealers pretty heavily stocked. Prices low. Good sales increase in low and medium priced trucks.

SPOKANE

Business outlook for the fall months is reported bright. September sales were either equal to or somewhat larger than sales for that month last year. Improved agricultural conditions are responsible for the greater wholesale business. Farmers have had a good crop and grain buyers report little grain moving, the growers selling only what is necessary to meet current obligations holding the bulk of their crop for better market conditions.

LOS ANGELES

September sales are slightly ahead of September last year in Southern California. The usual seasonal decline for September over August is not nearly as marked this year as last. The outstanding feature of the Los Angeles situation in the past few weeks is the restriction of Metropolitan dealer plans, following large withdrawals from overcrowded local association dealer organizations. Used cars are accumulating somewhat, but not seriously. New car stocks on hand are slightly increased. The September truck market is disappointing, running considerably under September last year and very little ahead of August.

NEW ORLEANS

Automotive business in New Orleans in September shows a decrease in the sale of new cars of approximately 19 per cent. Tires and accessories show no appreciable decline. Accessory dealers report a slight increase. The decline in sales of new trucks and truck equipment has been slight, business being substantially above last year.

Export Possibilities Cheer Tire Makers

Biggest Future Expansion Seen in Foreign Field With Car Growth

AKRON, Oct. 2.—Akron's tire manufacturers must look to foreign fields for their big expansion in the future, says P. W. Litchfield, president of the Goodyear Tire & Rubber Co. "For the first time countries outside the United States are increasing in car registration faster than the United States," he declared, "and this situation will continue, making the export field continually more important."

While Goodyear is a leader in foreign trade, as well as in domestic business, Mr. Litchfield points out that the factory must give its utmost cooperation to export to successfully meet the difficulties of distance and duties and tariffs. Goodyear, Goodrich, Firestone, Miller and other companies now have branches in remote corners of the globe, and are extending their foreign trading facilities as fast as possible.

A recent report received by manufacturers here from H. H. Kelly, U. S. trade commissioner at Paris, shows that American tire companies are making substantial inroads in France. Although Michelin still is a strong factor in Europe, Commissioner Kelly states that it is faced with a disadvantage by the swing of the world industry from clincher to straight side tire types—and for this America is chiefly responsible. Michelin still clings to clinchers as its standard type, although the weight of numbers is increasingly on the side of the American straight-side type.

Last Quarter Shipping to Exceed 1925 Period

DETROIT, Oct. 2.—Freight car requirements of the automotive industry for the last three months of 1926 will be greater than for the last quarter of 1925, according to reports submitted at a meeting of traffic managers of the National Automobile Chamber of Commerce, held here this week.

A committee to represent the N. A. C. C. in the matter of studying freight rates with a view to possible adjustments, was appointed. It is composed as follows: E. N. Hoges, Hupp Motor Car Corp., chairman; P. G. Finley, Dodge Brothers, Inc.; George C. Conn, Buick Motor Co.; C. R. Scharff, Chevrolet Motor Co., and W. J. Bailey, Durant Motors Corp.

Car Fatalities Decline

NEW YORK, Sept. 30.—Statistics compiled by the Metropolitan Life Insurance Co. show that automobile fatalities up to Sept. 4 of this year have declined slightly, as compared with the same period last year. The decline was due chiefly to a decided falling off in

the rate during July and August. The company announcement states that it is impossible to determine whether the decline was due to unseasonable weather or to the many safety campaigns which have been inaugurated. Also this is the first time since the company has been compiling these statistics that a decline has been shown for this period. The first six months of this year showed the usual yearly increase.

Specialty Jobbing Listed for Study

CHICAGO, Oct. 4.—The specialty jobber will come in for extensive discussion at the convention of the Automotive Accessories Association at the Morrison Hotel on the evening of Nov. 10, according to William B. Levey, association secretary and manager of the show the association is to hold at the First Regiment Armory Nov. 8 to 13. The specialty jobber's relation to the manufacturer and distribution, his importance generally and trade problems in which he figures will be brought into the forum. A leading speaker on this subject will be George Fritz, president of the Fritz Mfg. Co., of Cincinnati.

One of the features of the convention will be distribution among jobbers of a standardized stock catalog which is nearing completion. S. M. Dover, president of the Doray Lamp Co., Chicago, as chairman of the association board will preside at the convention. There will be an election of eight regional governors who, in turn, will elect a chairman for the ensuing year and name committees.

Mr. Levey announces that 104 exhibitors already have taken space and come into the association. There are accommodations at the armory for about 140 spaces.

Texas Proposes Tax Change

AUSTIN, TEXAS, Sept. 27.—Raising the sales tax on gasoline to three cents a gallon from one cent a gallon is proposed in a bill which has been introduced in the legislature by Representative F. A. Dale. The bill also provides for a registration fee for automobiles that would eliminate the horsepower charge on vehicles, and base fees solely on weight. For passenger automobile, the weight charge would be halved on all types; on trucks, the weight charge would remain the same; and motor buses would pay a fee of \$4 for each passenger they carry, in addition to the weight charge. A charge of \$5 would be made on motorcycles.

Chrysler Adds New Unit

DETROIT, Oct. 4.—Chrysler Corp. is adding a new manufacturing unit 220x286 ft. to its factory buildings here which is to be completed within 60 days. A boiler house likewise will be built. The manufacturing unit is one story in height and will add 63,000 ft. of floor space.

Dealer Sent to Test Floor Finance Plan

Attorney Will Seek Refund From Finance Company of Interest Charges

SALT LAKE CITY, Oct. 2.—Casperson and Synder, Inc., automobile distributors and dealers and defendants in a receivership suit, have filed suit against the Auto Securities Co. to collect \$100,299. The complaint, attorneys for the automobile company say, will test the validity of the floor plan of financing, i. e., lending money on cars on the sales floor. It is stated that in each case a note was given payable either 30 or 60 days from date, as part of a purchase price of an automobile.

It is claimed that interest rates charged by the securities company vary from a little over 12 per cent, provided by law, to a number of charges above 20 per cent, and even reaching in one instance 104.22 per cent on a note declared to have been repaid in one day. Plaintiffs' attorneys contend that the interest rate was usurious and that their clients are entitled to return of not only the interest, but the principal of the 89 alleged notes. Most of the notes are for more than \$1000 each.

The demand of 1 per cent of the face, according to plaintiffs' attorneys under the name of financing, is one of the factors in augmenting the interest above the legal limit.

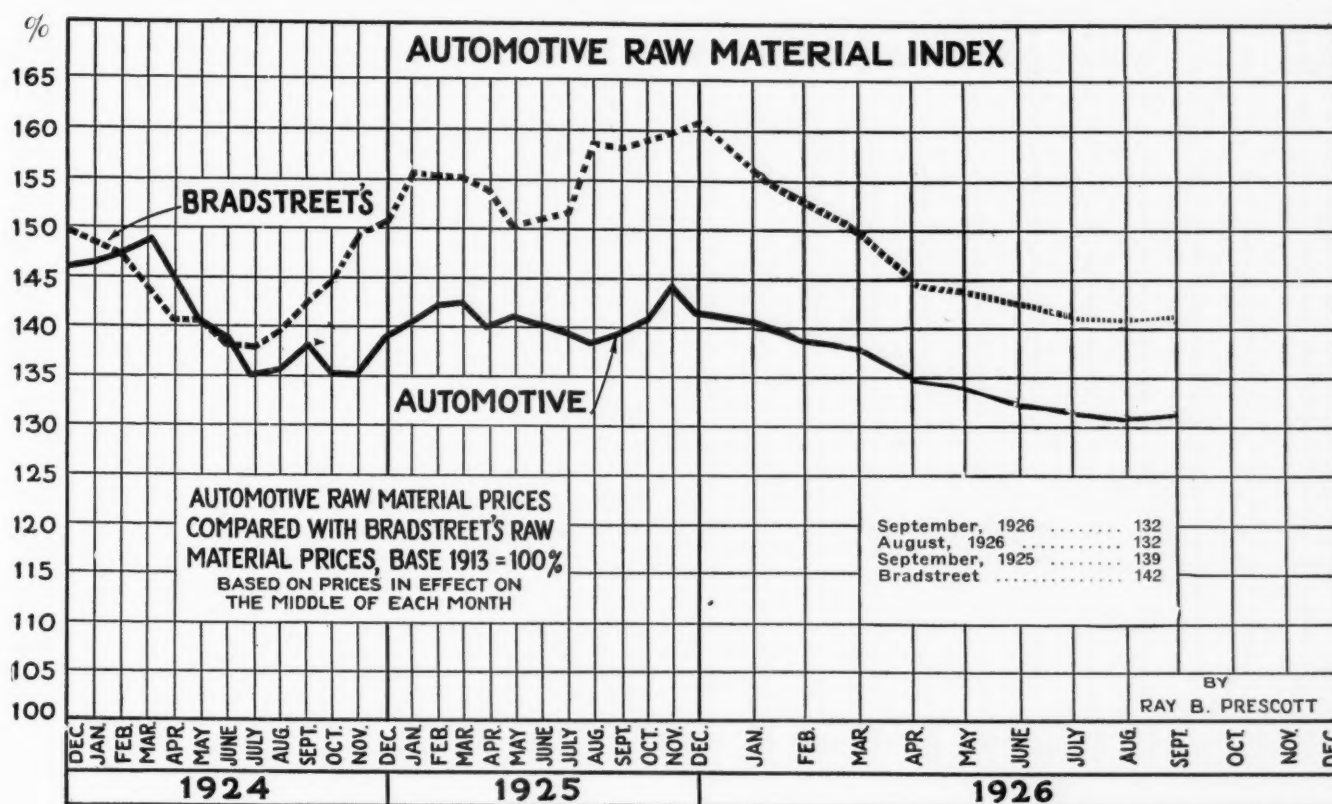
Seek Places in Industry for 200 Chinese Students

WASHINGTON, Oct. 3.—Appreciation of the automobile as a factor in economic life, is rapidly gaining in the Far East, according to Joseph Baile, organizing director of the Institute of Technical Training of the Chinese Foundation for the Promotion of Education and Culture at Shanghai. Dr. Baile was a visitor this week to the U. S. Department of Commerce. He is enroute to Detroit to make arrangements for the placing of 200 Chinese students in the automobile industry. Already 100 students have been placed with Ford and 75 with other manufacturers. "These students become good mechanics, and return to their home thoroughly 'sold' on the Occidental's idea of transportation and are really outposts in their country of the automobile industry," Dr. Baile declared in speaking of the influence imparted to them by their two and three years' contact with the automotive industry.

Ford Planes to Buffalo

DETROIT, Oct. 2.—A daily air freight service between Detroit and Buffalo will be established early this month by the Ford Motor Co. A Stout three-motored metal airplane, manufactured by the Ford company will be used on the line which will carry only freight of the Ford Motor Co.

Raw Material Prices Continue Steady



Banks See Industry in Strong Position

CLEVELAND, Oct. 4.—Buying of automobiles on deferred payment plans is on the increase, says C. L. Bradley, executive manager of the Union Trust Co., who sees in this industry the first major practical test of instalment buying.

"Thirty-seven dealers report," says Mr. Bradley, "that 49 per cent of their total retail sales during July were on instalments as against 46.6 per cent in June and 42 per cent in July one year ago.

"However," he continues, "the automobile industry has come through the summer in better condition, on the whole, than was expected in some quarters and there has proved to be no great excess of new stocks in dealers' hands and no unusual congestion in the used car market. Production has held up rather satisfactorily during the summer and fall schedules indicate a high level of operation in the latter part of the year.

"While earning levels of various companies have been decidedly irregular, some companies showing losses and others exceptional gains, the earnings for the industry as a whole throughout the past year have been good."

Reeves Finds Rates High

NEW YORK, Oct. 4.—Addressing the Brooklyn Rotary Club this week, Alfred Reeves, general manager of the National Automobile Chamber of Com-

merce, said automobile insurance rates were too high because too little effort is made to investigate the personal integrity of the policy holder and because no central agency exists for apprehending the thief. The fact that only 24 states have certificate of title laws was also cited by Mr. Reeves as making the recovery of cars more difficult.

Chicago Board Offers Loop Traffic Proposals

CHICAGO, Oct. 2.—Congestion in the Chicago loop is intensified by horse vehicle parking, a lack of wide streets and high speed arteries, too much jaywalking, small consideration for the rights of pedestrians and archaic traffic laws, according to a survey made by the Chicago Association of Commerce. The survey credits Chicago with a greater traffic density in the central business district than that in any other city. Loop streets, it was found, carry 846,753 persons and 314,610 vehicles on an average week day. Strictly enforced and better parking laws, new arteries, more light controls and other traffic measures are recommended.

Marmon Extends Plant

INDIANAPOLIS, Oct. 4.—Marmon Motor Car Co. has awarded a contract for a new main manufacturing building, 440 ft. in length, to the H. K. Ferguson Co., Cleveland. The new unit will be one story in height and will make possible the largely increased production schedules required for the addition of the new small Marmon.

Parts Buying Trend Seen by Thompson

CLEVELAND, Oct. 2.—The automobile industry of the future will be so stabilized as to distribute car building over 12 months of the year about equally; the manufacturer will increase his tendency to buy vital chassis and engine parts from the outside manufacturer; the lighter weight motor car will greatly increase in number. These are the predictions of Charles E. Thompson, president of Thompson Products, Inc. He said:

"Three years ago in our business, which reacts directly to car production, we were still having decidedly unbalanced seasons with slow months during the summer and fall and a peak period beginning with January and lasting through late spring. Last year this was not so marked, and July and August of this year compare favorably in number of pieces produced with any other month of 1926 so far.

Will Reduce Prices

"Another trend is the growing practice of the motor car producer to buy vital parts from outside industries who concentrate on production and are equipped with highly specialized machinery and workmen. This has the effect of distributing the wealth invested in the automobile industry over a broader area and a greater percentage of the nation's population. It also aids in reducing price of parts through mass production.

Men of the Industry and What They Are Doing

Gorrell on Committee to Study Aeronautics

The appointment of E. S. Gorrell, vice-president of the Stutz Motor Car Co. of America, Inc., to a special committee of the Chamber of Commerce of the United States to study the aeronautic situation, was announced this week. The committee has been formed to carry on this study with a view to furthering the development of civil and commercial aeronautics.

Mr. Gorrell was in charge of aeronautical engineering of the American Expeditionary Forces during the World War and was also a member of the international committee which drew up the international convention report on aeronautic investigation. During and since the war he has represented the United States in several hundred international conferences on aeronautics.

Page Heads Autocar Sales

R. P. Page, Jr., has been appointed general sales manager of the Autocar Co., and will have his headquarters at the factory at Ardmore, Pa. Formerly he was manager of the company's Boston branch. F. S. Sumner is moved from the Providence branch to succeed Mr. Page at Boston and J. E. Higgins of the Providence sales staff has been made manager. S. M. Williams who has been specializing in promotion work in connection with the highway market, has been appointed manager of the Chicago office succeeding J. S. Conroy, resigned.

Vincent and Bill Sail

H. L. Bill, general manager of the Owen Dyneto Corp., of Syracuse, and J. G. Vincent, vice-president of the Packard Motor Car Co., left recently for an extended trip to England and the Continent. Just prior to his departure Mr. Vincent said that sales and earnings of the Packard company are very satisfactory. The company is turning out 3000 sixes monthly and 500 eights. This schedule is expected to continue practically until the end of the year.

Loomis Gives Lectures

Edward F. Loomis, secretary of the Motor Truck Committee of the National Automobile Chamber of Commerce, delivered the first of a series of lectures at New York University this week, in connection with a course on the Economics of Truck and Bus Operation, and is also preparing to publish a book on this same subject.

Madelung Teaches Aviation

Dr. George H. Madelung, formerly of the Glenn L. Martin Co., Cleveland, is now professor of aeronautics at the Technological Institute of Berlin and director of the German Experiment Station for Aeronautics at Aldershof.



H. O. Smith

Former Premier president now Chief of the Automotive Division, Department of Commerce.

Brower Heads Timken Service

R. C. Brower has been appointed general manager of the Timken Roller Bearing Service Sales Co., which maintains 25 direct factory branches and several hundred authorized distributors. Mr. Brower will make his headquarters in Canton at the main plant of the Timken Roller Bearing Co., but will devote a great deal of his time to maintaining contact in the field.

Seward and Jordan Speak

Closer study of the market that the efficiency of advertising may be increased was urged by Stanley P. Seward, advertising manager of the White Co. in an address before the industrial division of the Cleveland Advertising Club last night. Edward S. Jordan, president of the Jordan Motor Car Co. discussed "Advertising from the executive's point of view."

Kesner Named Vice-President

Directors of the Yellow Cab Co. elected S. H. Kesner vice-president to fill the vacancy caused by resignation of H. A. Mullet. Mr. Kesner is president of Benzoline Motor Fuel Co., a subsidiary of Yellow Cab Co.

Howard on N. A. C. C. Committee

John M. Howard, advertising manager of Federal Motor Truck Co., has been appointed to the advertising committee of the National Automobile Chamber of Commerce.

Hudson Names Romine Domestic Sales Head

R. T. Romine has been appointed sales manager in charge of domestic sales, by the Hudson Motor Car Co., according to O. H. McCornack, vice-president and sales director. Mr. Romine has been affiliated with the Hudson company in various capacities for eight years.

Elcar Names District Heads

Four district sales managers have been appointed by Elcar Motor Co. to cooperate with R. A. Rawson, general sales manager, in the plan of immediate expansion now effective. Donn R. Shelton, Glen W. Holtz and J. H. Tool have been assigned to the southwestern, eastern and central territories respectively as district managers, and N. O. Gilbert has been appointed district manager in the northwestern territory. The three first named men were formerly territorial men with the company, and Mr. Gilbert was a district manager for Stutz.

Amorous Rejoins Marmon

C. B. Amorous has disposed of his interests in the Wills Sainte Claire Co. of New York, of which he was president, and has resigned to accept the position of sales manager with the Marmon Motor Car Co. of New York. C. M. Baldwin, who was assistant to Mr. Amorous, succeeds him with the Wills Sainte Claire organization. Mr. Amorous, in joining the Marmon Motor Car Co., resumes associations of several years ago, when E. A. Travis, now vice-president of the Marmon company, and Mr. Amorous handled the Locomobile in New York.

Ewald Names Salisbury

Establishment of a branch office in Paris by the Campbell-Ewald Co., is announced by H. T. Ewald, who recently returned from a business trip to the Continent. E. V. Salisbury was selected by Mr. Ewald while he was in Paris, to direct the new office. He joined the French army during the World War and was later associated with the Du Pont Old Hickory plant at Nashville, Tenn. Later he represented the Willys-Overland Co. in Paris.

German Metallurgist Speaks

Dr. William M. Guertler, metallurgist of Berlin, Germany, addressed the Cleveland Chapter of the American Society for Steel Treating in the Cleveland Engineering Society's rooms this week on the corrosion resistance of steels. Dr. Guertler is a director of the Metall Institute der Technischen Hochschule, president of the German Metallurgical Society and editor of the leading German technical journal of the metallurgical field.

Goodyear Proposes New Finance Plan

Would Issue \$64,000,000 in
Bonds and Stock to Replace
Existing Securities

AKRON, Oct. 4—Following a meeting of the Goodyear directors the following statement was issued tonight:

The board of directors of the Goodyear Tire & Rubber Co. met today and considered the question of refunding the senior securities of the company, first mortgage bonds, debentures and prior preference stock and adjusting the back dividend, accumulation on the preferred stock, amounting to \$29.75 per share or \$19,361,181 in total. The meeting authorized the officers to confer with the voting trustees of the preferred and common stock on all phases of the subject. The board is to reconvene a few days hence to consider the report of such conference. It is expected at such meeting definite action will be taken.

P. W. Litchfield, president of the company, presented to the board a statement showing the effect upon the company and stockholders, of the existing financial structure with its heavy sinking fund requirements projected over a period of years.

Mr. Litchfield then presented an outline of a refunding plan designed to conserve the company's cash resources and thus place the company in a stronger position with respect to payment of dividends on the preferred and common stocks through a large reduction of existing annual sinking fund charges. This plan, briefly, contemplates the placing of the existing first mortgage bonds, debentures and prior preference stock, all of which bear interest or dividends at 8 per cent, with a new issue of \$50,000,000, 5½ per cent first mortgage bonds, and \$14,000,000, 7 per cent new prior preferred stock. The plan also contemplates the termination of all voting trusts and management stock and the vesting of control unconditionally in the hands of the stockholders.

Would Take Years to Pay

It was pointed out by Mr. Litchfield as obvious, therefore, that the company would not, except gradually over a period of years, be able to pay off in cash the preferred stock dividend arrearages amounting to about \$20,000,000. He also pointed out that the preferred stock sinking fund would be in default more than \$9,000,000 as of Oct. 31, increasing at the rate of about \$1,600,000 per year. These dividends and sinking fund arrearages, aggregating over \$29,000,000 stand in the way of any dividends on the common stock.

Mr. Litchfield stated that the officers of the company were of the opinion that a basis of adjustment between the preferred and common stockholders might well be worked out under which the

preferred stockholders would receive stock for their dividend accumulation and common stockholders be relieved of the barrier to dividends to them represented by the preferred stock sinking fund and other restrictions of the preferred stock.

Gasoline Reserves Show 10% Decrease

WASHINGTON, Oct. 6—Production of gasoline in August amounted to 25,416,000 bbl., an increase of 2 per cent over July and 9.6 per cent over August, 1925, the gasoline and petroleum statistics of the Bureau of Mines, Department of Commerce show. The daily average production during August, 1926, was 820,000 bbl.

Domestic demand during the month amounted to 26,282,000 bbl., a daily average of 848,000 bbl., representing an increase over the previous month of 9 per cent and over August, 1925, of 18 per cent.

A decrease of 10 per cent in stocks, which is high even for the month of August, features the statistics. Stocks of gasoline on hand Aug. 31, 1926, amounted to 34,551,000 bbl., against 38,315,000 on July 31 and 36,236,000 at the end of August, 1925. It was the first time since 1920 that August gasoline stocks fell below the amount on hand during the preceding year.

Domestic consumption of lubricants, amounting to 2,279,000 bbl. set a record figure. It was 9 per cent over July.

Nash 9 Months' Output Reaches 111,965 Total

KENOSHA, Oct. 4—Sales and production of Nash Motors Co. in September brought total volume for the first nine months to 111,965 which compares with 75,347 for the same period last year. Total production in all of 1925 was 96,121. October sales and production are expected to exceed October, 1925 by 50 per cent. September also established a new Nash overseas sales record.

Addition of new equipment in the light six plant at Racine will bring capacity for this model to 300 to 350 daily as compared to the present 225. The light six is reported by C. W. Nash to have been oversold for many weeks. Installation of equipment is expected to be completed in 60 to 90 days.

B & D Open in Pittsburgh

CLEVELAND, Oct. 3.—The Cleveland office of Black & Decker, already directing the company's affairs in Ohio and West Virginia, has been given jurisdiction over Greater Pittsburgh and a new sales and service station has been opened in the latter city. C. M. Hall, manager of the Cleveland branch, reports business among the jobbers in this territory 20 per cent better than last year, and last year was the greatest year for sales the Cleveland branch ever had.

Financial Notes

Hood Rubber Co. has sold to Brown Brothers & Co., Bankers Trust Co. and Hornblower & Weeks, \$5,000,000 ten-year, 5 per cent convertible notes, and to Hornblower & Weeks and associates, 45,000 shares of common stock. Offering of the notes and stock will be made next week. The 45,000 shares of common, of no par value, is part of a new issue of 50,000 shares, of which 5000 shares have been reserved for employees. A stock dividend of 25 per cent was recently declared which required 30,000 shares; this, with the additional 50,000 shares, will bring the amount of common outstanding to 200,000 shares.

Bossert Corp. shows net profit of \$153,624 for the six months ended June 30, after all charges except Federal taxes. Dividends on preferred stock were resumed in July and the Oct. 1 dividend has been paid. Notes and acceptances payable have been reduced from last year's peak of \$610,000 to \$266,000. Current assets on Aug. 31 were \$1,061,242 with current liabilities \$403,587. Surplus totaled \$288,500. Fixed assets total \$1,713,191, against which reserves of \$1,015,244 have been set up. Unfilled orders and prospects are reported excellent.

Chrysler Corp. third quarter earnings are estimated at approximately \$3,525,000 after interest, Federal taxes and preferred dividends. This would be equivalent to \$1.30 a share earned on 2,705,098 common shares outstanding. In preceding quarter company reported profit of \$4,904,156 after charges but before Federal taxes, and in third quarter of 1925 profit was \$8,078,286 before Federal taxes and preferred dividends. With the \$2.58 a share earned in the first six months, a net of \$1.30 a share would bring earnings for nine months to \$3.88 a share.

Packard Motor Car Co. earnings for the year ended Aug. 31, 1926, amounted to about \$15,500,000 according to preliminary estimates. This compares with \$12,191,081 in the preceding year. On the basis of present 3,004,200 common shares outstanding, which includes 15 per cent stock paid Aug. 31, 1926, the estimated showing will be equivalent to approximately \$5.25 a common share, compared with \$4.04 a share on the like number of shares for the preceding year.

Fisk Rubber Co. declared regular quarterly dividends of \$1.75 each on the first preferred, the convertible preferred and the second preferred stocks. The first preferred and the convertible preferred dividends are payable Nov. 1 to stock of record Oct. 15, while the second preferred dividend is payable Nov. 15 to stock of record Nov. 1.

Continental Motors Corp. has declared the quarterly dividend at the rate of 80 cents per share per annum. Dividend is payable Oct. 30 to stock of record, Oct. 15.

Build New Type Wheel

OAKLAND, CALIF., Oct. 4—The Clench Wheel Co., building a new design of automobile wheel, has built and is now operating a factory covering 10,000 sq. ft. in Oakland.

Ford Coast Plant Works 5-Day Week

Present 5-Day Pay Basis to be
Changed to 6-Day Pay—
Larger Factory Planned

SAN FRANCISCO, Oct. 4—An official statement regarding the plans of the Ford Motor Co. for a new plant in the San Francisco Bay region was made this week by W. H. Goodwin, district manager for the Ford company. He said that the Ford corporation eventually would have a new modern plant on the bay, in which six days' production could be turned out in five days.

Continuing, Mr. Goodwin said:

"Our present facilities in San Francisco are not adequate for production of six days' output in five days' work. This means that we must have a new plant, where our own ships can unload and where work can be conducted on the scale set by Henry Ford.

"At the present time, however, no site for this plant has been purchased, nor have we made a deposit on any property. We have been interested in a number of sites, including one at Richmond." Richmond is on the mainland shore of San Francisco, across from, and about 10 miles northeast of, the city of San Francisco. Mr. Goodwin's statement continues as follows:

"It may be months, or it may be a year or two, or perhaps three, before a decision to move the plant is reached. That is very indefinite and uncertain. But when a site is selected, announcement of it will be made through the Ford Motor Co. It is recognized that a new plant is essential, and eventually will be built, but at the present time no definite assurance can be given by anyone as to where this plant will be located.

"The San Francisco plant is working five days a week on a five-day pay basis, but this probably will be changed to a five-day working week on a six-day pay basis when other considerations have been adjusted."

The announcement that the Ford company has definitely decided eventually to increase the San Francisco Bay plant, and to move it to another site than the one it now occupies in this city, is the first official statement to this effect issued by that corporation.

Pontiac Delivery Car Now in Production

PONTIAC, Oct. 4—A six-cylinder delivery car embodying the Pontiac chassis priced at \$790, is being shipped to several of the larger dealers this week by the Oakland Motor Car Co. The main feature of the new delivery car is the closed passenger car comfort for the drivers. This compartment is provided with regular Pontiac two-door sedan folding seats, sedan doors and window regulators, Fisher one-piece

windshield with automatic cleaner. The body of 77 cu. ft. capacity has the panels formed of metal and wood veneer with the exterior steel covering finished in blue Duco relieved with a broad belt of orange extended from the front compartment all way round the body.

With full load the floor of the body is 25 in. from the ground. The gas tank with gage is located at the rear of the body and the tires are special heavy-duty 29 x 4.75 in. balloons.

Marmon Organizes New Sales Districts

INDIANAPOLIS, Oct. 2—Under new merchandising plans of Marmon Motor Car Co. the United States has been divided into three zones under the management of S. A. Zweible, Ottis Lucas and H. W. D. Brown. The zones in turn have been divided into nine districts in charge of R. W. Greulich, Porter Smith, H. C. Edwards, J. K. Gregory, John Tainsh, Paul Morford, L. F. Johnson, John Boe and G. F. Green.

The foreign zone under F. L. Hambly will include a European district under W. L. Nicoll and a South American district under Pablo Homs. Additional foreign districts are to be organized.

The change is made to develop the general territory for the new Marmon 75 and for the small Marmon to be introduced later. Plans were outlined at a meeting just held which was addressed by H. H. Brooks, general director of sales; W. T. Young, Jr., sales promotion manager, and O. A. Hoffman, educational director.

Production of the Marmon 75 is at the rate of 500 monthly it was announced and orders now on hand insure continuance of this rate to Dec. 1.

Retail Trade Higher

WASHINGTON, Oct. 5—Trade in retail stores in August showed the usual mid-summer dullness but averaged substantially larger than in August, 1925, reports to the Federal Reserve Board, analyzed by that body, show. Stocks generally were lower and sales larger, thus increasing the rate of turnover considerably over the 1925 rate, the reports indicate. The increases were common to virtually all lines of merchandise.

For the eight months ended with August, stocks were turned over 2.15 times, as compared with 2.10 times in 1925.

Wayne Tank Changes Name

FT. WAYNE, IND., Oct. 4—The change in name of the Wayne Tank & Pump Co. to the Wayne Co. is now effective. The change was made because of the extension of the company's products to others than those covered in the former name. The business status of the company and its policies are not changed.

Canadian Companies Show Sales Growth

American Factory Executives
Compliment Dealers on
Large Business of Year

TORONTO, Oct. 4.—Dealers' meetings were held by many large car manufacturing companies in the past few weeks to emphasize the extent to which Canadian business has grown in the first part of the year and to make plans for its continuance. Among the companies holding meetings were Ford of Canada, Dodge Brothers, Chrysler, Willys-Overland and Nash. The meetings were attended in most cases by ranking officials of both Canadian and American companies.

Addressing the Ford meeting, W. R. Campbell, vice-president and general manager, said policies would be continued as in the past. Sound policies, not tricks, will succeed in Canada, Mr. Campbell said.

Speakers at Nash meeting included E. H. McCarty, general sales manager, and E. L. Smith, assistant sales manager. Factory shipments to Ontario during the contract year ended Sept. 1, showed an increase of 353 per cent.

Willys-Overland dealers were congratulated by T. A. Russell, president of the Willys Canadian organization on a 50 per cent increase in business. Since the introduction of the Whippet sales have shown a very large increase and 1926-1927 sales he said would show a much higher total. Florian Leduc, Canadian sales manager, said arrangements were being made to speed up Canadian Whippet output to meet sales demand.

Speakers at the Chrysler meeting were J. D. Mansfield, president of the Canadian company; J. E. Fields and K. T. Keller, vice-presidents of the American company; R. C. Kilgour of the Packard Ontario company and C. H. Carlisle, president of the Goodyear Tire & Rubber Co. of Canada. Mr. Fields pointed out that sales in Canada increased 105 per cent as against an increase of 55 per cent by the American company in the past year.

The Dodge Brothers meeting was addressed by John R. Lee, general sales manager; H. H. Springford, vice-president in charge of finance; D. T. Stater, W. Roy Heilman and W. M. Purvis, E. P. Clarkson, managing director of the Canadian company and R. E. Stone, secretary-treasurer.

Leipzig Aids Car Sales

NEW YORK, Oct. 2.—American automobiles are reported to have scored successfully in their exhibit at the Leipzig Trade Fair, particularly those in the lower price classes. Among the cars shown were Ford, Chrysler, Kissel, Franklin, Lincoln, Hudson, Essex, Packard, Studebaker, Cleveland, Gardner and Nash.

Cygnets Win Light Plane Test

Take Two Places in British Competition for Privately Owned Types

LONDON, Sept. 27 (by mail)—Trials of light passenger airplanes of all-British construction were held in England during the week of Sept. 12, with Lympne Aerodrome as headquarters, the daily routes consisting of circuits in various directions, approximately 300 miles being covered on each of the six days' actual flying. The trials were won by a Hawker Cygnets biplane, which secured the first prize of £3000 offered by the London Daily Mail. The latter also put up second and third prizes of £1500 and £500, respectively, and these were won by another Hawker Cygnets (entered by the Royal Aircraft Establishment Flying Club) and a Bristol Brownie monoplane. Only one other machine out of the 15 entrants completed the trials, the remainder having been eliminated during either the preliminary tests or the actual flying.

The preliminary tests were devised to prove, before the six ensuing days of fuel economy flying, that each of the competing machines was capable of being housed, handled and flown by a private owner, and had to be dismantled, housed in a shed 10 ft. high and 10 ft. wide, brought out again and re-erected, all by two people in not more than one hour. In the flying tests every machine had to average not less than 50 m.p.h. and carry a load including pilot and passenger of at least 340 lb. Moreover, no engine was allowed to be used if it weighed more than 170 lb.

The result was decided on a basis of the greatest load carried for weight of fuel consumed. By the rules of the preliminary trials the machines had to climb to a height of 25 ft. within 300 yds. of the starting point and maintain that height until they had crossed a second barrier of equal height 25 yds. farther on.

All Engines Air Cooled

All four of the machines to finish were fitted with the Bristol Cherub Mark III air-cooled engine, rated at 34 hp. The winner had flown with a useful load of 430 lb. and a total load of 900 lb. at an average of 65 m.p.h. for a full expenditure of 388.7 lb., or one Imperial gallon every 38 miles flown. The second machine used 399 lb. of fuel with a speed of 55.7 m.p.h. and the third 402 lb. The actual distance flown was 1994 miles.

The result of the trial is considered disappointing in one sense, because no new type of machine finished, every one having been ruled out of the competition during its progress, though in almost every instance by sheer bad luck. Even the one new type which, since 1924 (when similar trials were held),

GERMAN CITIES PLAN TOLL ROAD FOR CARS

WASHINGTON, Sept. 29—A highway for the exclusive use of motor vehicles, which is to cross no other road at a level and which will run through no villages, is to be built between Mannheim and Heidelberg, Germany, if present plans are carried out, according to a report to the Department of Commerce from the American Consul at Stuttgart. The proposed road will be 29.5 feet wide, and it is estimated that it will cost, in all, about 5,000,000 marks. It is proposed to charge a toll for all vehicles and persons using the road, thus paying for its construction.

has secured official approval for use by State-aided flying clubs, was eliminated. This was the D. H. Moth, which, in the trials, was fitted with the new five-cylinder Armstrong-Siddeley "Genet" air-cooled radial engine, which has a normal rating of 70 h.p. for a weight that was brought within the 170 lb. allowed, by using a magneto alone instead of the usually fitted dual ignition. The "Moth" failed on account of a technical breach of the regulations.

Indian Imports Show Large Gains in Quarter

LONDON, Sept. 18 (by mail)—The trade commissioner at Calcutta states that the rapid spread of motor bus services is sending up commercial vehicle imports with a bound. In the quarter ended last June 1582 vehicles (value Rs. 28 lakhs) were imported against 718 units (value Rs. 14½ lakhs) in the corresponding period of 1925.

Most of these vehicles came from North America. The unit price of British vehicles was Rs. 4600; of American, Rs. 2000; and of Canadian, Rs. 1290.

In the period under review automobile imports increased from 2291 to 3330. In the later period America sent 1167; Canada, 1360; Italy, 374, and Great Britain, 329.

Aster to Use Single Sleeve

NEW YORK, Oct. 2—The Aster Engineering Co., a British firm producing high-grade cars with a limited output, has announced a new model, supplementing an overhead valve "Six" of 185 cu. in.; the new model has a sleeve valve engine based on the Burt-McCollum patents though it differs from other engines of this type previously produced in the operating mechanism for the sleeves and in the use of steel in place of cast-iron for the latter. The new engine is termed 24-70 hp. and has six cylinders with a bore and stroke of 80 x 115 m.m. The chassis has a wheelbase of 147 in., and will sell at £785.

Imperial Airways Shows Loss in Year

Writing-Off of Single-Engine Planes and Delay in New Planes Held Cause

LONDON, Sept. 21 (by mail)—Although the second annual report of British Imperial Airways (the Government subsidized company that two years or so ago absorbed all existing British airlines) shows that good progress has been made in the task of creating a good will "based upon safety and reliability," it indicates that the company again worked at a loss during the second year of its existence, ended March 31 last.

The explanation is twofold. In the first place, delay in the delivery of new airplanes made it impossible to earn the increased revenue anticipated, and resulted in considerable traffic passing to the benefit of foreign competitors. This is reflected in a reduction of £12,015 to £21,749 in the balance from trading account, a figure which is reached after crediting subsidies. The other cause of the loss is the larger sum—£27,167 against £22,998—placed to reserve for obsolescence, due to the decision of the board to write off single-engine machines from the Continental services in the interests of safety. These have been replaced by new twin and three-engined machines.

The new multi-engined machines have given good results, and the company has carried more passengers in the first five months of the current year than during the whole of 1925-26, while the new aircraft are being flown at a decreased cost per ton mile. The directors therefore anticipate that the debit balance—which now amounts to £35,632—will be reduced as a result of the current year's operations.

Fresh capital being needed for the five new three-engined machines now under construction for use on the service from Egypt to India, the uncalled balance of 10s. per share will be called up by two calls of 5s. each. Part of the additional capital required has been provided out of existing resources, and the holding of investment securities has been reduced from £148,000 to £76,000.

Amphibian Plane Ready

WASHINGTON, Oct. 2—A description of the new Loening Amphibian airplane of the Army, which is to be used on the proposed South American flight, and which can alight and start on either land or water, has just been issued by the War Department.

The plane carries a Liberty engine in an inverted position, to give the pilot greater range of vision. The engine is capable of 420 hp. at 1700 r.p.m. When fully loaded the plane, which has an overall span of 45 ft., weighs 5000 lb. and carries a crew of two. Its speed at sea level is about 118 miles an hour and its cruising endurance 14 hours.

Peugeot Sets Mark in Italian Races

MILAN, Italy, Sept. 22 (By Mail).—A four-cylinder sleeve valve Peugeot, carrying full equipment and driven by Andre Boillot, won the Italian 24-hour race on Monza track, held here, with a distance of 1616.7 miles, being an average of 67.7 miles an hour. This beats the previous record for this class of race, established at Le Mans, France, last June, by 38 miles. Louis Rigal, also on a sleeve valve Peugeot, finished second with 1608.3 miles. Third place was captured by Dosio on a 122 in. O.M., with 1311 miles. Crespi, on a S.A.M., finished fourth with 1728 miles; Jean Graf, on a car of his own make, was fifth with 1099 miles and a 61 cu. in. Peugeot, driven by Camuzel, covered 981.3 miles in the 24 hours.

In the Milan Grand Prix free-for-all 248½-mile race, Costantini, on a supercharged 122-in. Bugatti, was the winner in 2 hrs. 36 min. 18 2/5 sec., average speed 95.4 miles an hour. Jules Goux came second, on a similar Bugatti, 11 minutes behind the winner. Two other Bugattis finished second and third and Brilli Peri, on an Itala, was fourth. Major Seagrave, whose car, a 12-cylinder 244 in. Sunbeam, was the fastest and the most powerful in the race, was forced out at half distance with steering gear trouble.

91½ Inch Race Disappointing

The last 91½ in. race of the European season, run at Monza and constituting the world's championship, was just as disappointing as previous events of the season. Charavel, a practically unknown amateur, driving a supercharged Bugatti, won the race by covering 372 miles at an average of 85.87 miles an hour. Soon after the start Constantini and Goux got a substantial

Coming Feature Issues of Chilton Class Journal Publications

Nov. 4—Motor World Wholesale. Annual Marketing Issue

Dec. 10—Operation and Maintenance—Service Station Equipment Issue

Dec. 15—Commercial Car Journal—Good Roads Issue

Jan. 1—Automobile Trade Journal. Annual Show Issue

Jan. 6—Motor Age. Annual Show Issue

Jan. 15—Commercial Car Journal—New York Show Issue

lead on their Bugattis, but Goux dropped out at two-thirds distance with a broken oil pump and with only 10 miles to go Costantini's engine seized, allowing Charavel to finish practically alone.

In the 67 cu. in. class Morel and Arthur Duray finished first and second on supercharged Amilcars, the former averaging 82.6 miles and hour, and the latter 78.7 miles.

Plan Spain-Argentine Route

LONDON, Sept. 20 (By Mail).—A report received here from Barcelona states that plans are being formulated in Spain to establish a regular trans-Atlantic airplane service between Seville and the Argentine, and that a company to be formed for the purpose will be subsidized by the Spanish Government. No details are available at present, though it is added that the new airport at Seville will be linked up with projected British lines to Egypt and India.

16 American Makers Exhibit at Olympia

LONDON, Sept. 20 (By Mail).—The preliminary list shows that more than 500 stands will be taken at the Olympia automobile show which opens in England Oct. 21. The automobile section will have 95 exhibitors, the carriage work section 63, tire section 21 and accessory and component section 327.

British makes of cars on view will total 44, French 21, American 16, Italian 10, and Australian and Belgian 2 each. The American exhibitors include Chandler, Chevrolet, Chrysler, Dodge, Hudson-Essex, General Motors, General Motors of Canada, Hudson, Hupmobile, Marmon, Moon-Diana, Packard, Paige-Jewett, Reo, Studebaker, and Willys-Overland.

Boeing to Operate Planes

SEATTLE, Oct. 4.—The Boeing Airplane Co. of Seattle, after constructing planes for the government for 10 years, has announced that it will soon begin the construction of commercial aircraft and establish a passenger service between Seattle and Victoria and Vancouver, B. C.

The planes on this passenger route will each carry 10 passengers and 20 pounds of freight per person.

Make Non-Freeze Liquid

CHICAGO, Oct. 3.—A new non-freeze liquid for internal combustion engine cooling systems has been placed on the market by the Corace Laboratories, Inc., under the trade name, Lozone. It is said not to freeze above minus 50 deg. F. and not to boil below 220 deg., and its heat absorbing capacity is said to be equal to that of water.

Calendar of Coming Events

SHOWS

Brussels	Dec. 4-15	New York	Oct. 20-30	Automotive Accessories Association, Chicago	Nov. 8-13
Buenos Aires	Dec. 7-20	Electrical and Industrial Exposition, Grand Central Palace.		Automotive Equipment Association, Coliseum, Chicago	Nov. 8-13
Ninth Argentine Automobile Show, Palermo Park.		New York	Nov. 28-Dec. 4	The Motor and Accessory Manufacturers Association, Credit Conference, Hotel Statler, Cleveland....	Oct. 20-22
Cairo	Feb. 15-March 15	Annual Salon, Hotel Commodore.		National Association of Finance Companies, Palmer House, Chicago	Nov. 15-16
First International Motor Show.		New York	Jan. 8-15	National Standard Parts Association, Hotel Sherman, Chicago....	Nov. 15-19
Chicago	Nov. 8-13	National, Grand Central Palace, National Automobile Chamber of Commerce.		National Tire Dealers Association, Inc., Memphis, Tenn.	Nov. 16-18
Coliseum Automotive Equipment Association.		Paris	Oct. 7-17		
Chicago	Nov. 8-13	Auto Salon, Grand Palais.			
Accessory Exhibit Armory.		Paris	Dec. 3-19		
Chicago	Nov. 15-19	International Aeronautic Exposition, Grand Palais.			
Hotel Sherman, National Standard Parts Association.		Ponce, Porto Rico	Dec. 1-12		
Chicago	Jan. 10-15	San Francisco	Oct. 7-15		
Coliseum, American Road Builders' Association.		All-Western Road Show.			
Chicago	Jan. 29-Feb. 5				
National, Coliseum, National Automobile Chamber of Commerce.					
Chicago	Jan. 29-Feb. 5				
Annual Salon, Hotel Drake.					
London	Oct. 4-9				
Olympia Motor Cycle.					
London	Oct. 21-30				
Los Angeles	Feb. 12-19				
Annual Salon, Hotel Biltmore.					

CONVENTIONS

American Gear Manufacturers Association, Semi-Annual Meeting, Briarcliff Manor, N. J.	Oct. 14-16
American Road Builders' Association, Congress Hotel, Chicago....	Jan. 10-15
American Welding Society, Broadway Auditorium, Buffalo	Nov. 17-19
Associated Manufacturers of Fabric Auto Equipment, Inc., La Salle Hotel, Chicago	Nov. 13

S. A. E. MEETINGS

Boston, Nov. 16-18, National Transportation and Service.	
Chicago Section, Oct. 12.	
New England Section, Oct. 14.	
Metropolitan Section, Oct. 21.	

RACES

Dallas, Texas	Nov. 11
Laurel, Md.	Oct. 22
Los Angeles	Nov. 25
Salem, N. H.	Oct. 12